

Snap-on

"THE CHOICE OF BETTER MECHANICS"



SNAP-ON TOOLS CORPORATION KENOSHA, WISCONSIN

CATALOG 77

See Standard Catalogue American Institute of Mechanical Engineers

1301 Olive Way, Seattle 22, Washington

Telephone: CROCH 7626

30 YEARS OF DEPENDABLE SERVICE
AND ADHERENCE TO THE HIGHEST
STANDARDS OF QUALITY HAVE MADE

* **Snap-on Tools**

"The Choice of Better Mechanics"

Guarantee

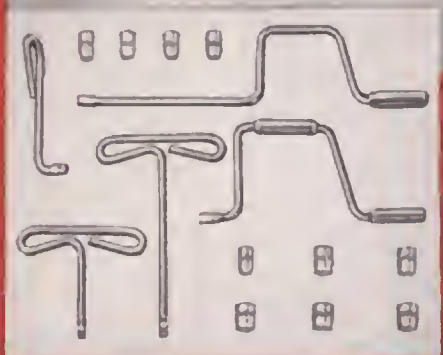
"Snap-on and Blue-Point tools are built to meet the exacting and particular working requirements of professional mechanics. The product of an organization that is committed to the highest quality it is possible to produce.

"Every tool manufactured and sold by this company has been carefully inspected before leaving the factory and, to best of our knowledge, is free from defects in materials or workmanship. Any tool found to be defective in materials or workmanship will be replaced cheerfully. Tools which have failed for reasons other than those stated above, or because of abuse, intentional or unintentional, will not be replaced.

Each operation in the manufacture of Snap-on products is thoroughly checked to insure the conformity of every tool to the rigid standards of quality which you have the right to expect. Our guarantee protects your tool investment.



◀ 1920 - 1950 ▶



ORIGINATORS

OF THE INTERCHANG-
ABLE WRENCH AND
STILL THE LEADER IN
QUALITY AND SALES

FROM 15 WRENCHES TO THE MOST COMPLETE LINE OF ITS KIND

The story of Snap-on's development is typical of American enterprise. The business began in 1920 in a home workshop where the first sets of interchangeable socket wrenches were produced. While many factors have contributed to Snap-on's present position of leadership in the mechanic tool field, the following are of major importance.

- The high standards of quality maintained in Snap-on products.
- The cooperative spirit of Snap-on's factory employees whose workmanship determines quality.
- Thirty years of dependable, personalized service rendered coast-to-coast.
- Recognition by production and service minded men throughout industry that Snap-on tools are the finest of their kind.



◀ 1920 - 1950 ▶

FROM RENTED SPACE TO THESE MODERN FACTORIES

Here are the very best ways to buy the best mechanics tools

- 1 If you are located near one of the Snap-on branch sales offices listed below, come in and examine the tools listed in this catalog . . . see for yourself the outstanding quality of Snap-on products. We will be glad to demonstrate any tools for you or help you select those best suited to your needs.
- 2 Over 750 Snap-on "men" call regularly on garage and industrial shops coast-to-coast—one of these men covers your vicinity. Write or phone the nearest Snap-on branch and ask to have the Snap-on "man" call on you. He will show you the tools you are interested in—make delivery from his car stock—or arrange prompt shipment from the branch.
- 3 Select from the catalog the tools you need and use the order form provided for your convenience. Tools will be shipped promptly from our nearest branch office or delivered personally by the local Snap-on "man." To assure your complete satisfaction with purchases ordered and delivered by mail, we ask that you examine your purchase and, if for any reason a tool fails to meet with your approval, return it to us unused within ten days' time . . . we will gladly replace it with a similar tool or refund its cost, whichever you specify.

GENUINE SNAP-ON TOOLS ARE NOT AVAILABLE AT STORES

Long "the choice of better mechanics," Snap-on tools are easily available to tool users everywhere as described above. But you will not find them at hardware or other stores, accessory dealers, mill supply houses, etc.

The Snap-on "man" renders a regular, dependable service to his customers and is a familiar figure in every auto repair shop. This same service is available to the farmer, the businessman who renders product maintenance or needs tools for his own plant upkeep, the man who wants good tools in his home workshop, etc. Throughout industry Snap-on tools are recognized as top quality in design, material, and workmanship . . . "The choice of better mechanics."

Professional mechanics throughout industry—in every phase of product assembly, plant maintenance and customer service depend upon Snap-on tools—because they know that fine tool equipment pays big dividends in speed, fine workmanship and safety. The leader in the tool field for over 30 years, Snap-on can always be depended upon to serve you best with the finest tools that can be produced . . . let the actual working performance convince you of Snap-on superior design, construction and quality.

USE SNAP-ON'S DEFERRED PAYMENT PLAN

This plan makes it easy for you to buy all the tools you need today to help you work more profitably. Any order of \$50.00 or over can be purchased by using Snap-on's easy payment plan. You can pay in convenient monthly installments. The local "Snap-on man" will gladly give you complete information . . . or simply use the enclosed mail order form requesting information or phone the branch address shown on the order form.

PRICES SHOWN IN SEPARATE PRICE INDEX ARE NET TO THE TRADE

We reserve the right to make changes in design or construction at any time without incurring any obligation to incorporate such changes in tools or equipment previously sold . . . also to discontinue the manufacture of any tools or equipment at such time as we deem it necessary. All dimensions shown in this catalog are subject to commercial tolerances.

★Note: This symbol is used throughout the catalog to indicate those tools which, because of their nature, are liable to abuse and therefore are not subject to replacement.

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SNAP-ON TOOLS CORPORATION

Manufacturers and Exclusive Distributors

KENOSHA, WISCONSIN

Factories: Kenosha, Wis., Mt. Carmel, Ill., Newport, Pa., Long Branch, Ont.

★ ★ ★

BRANCH SALES OFFICES LOCATED IN 41 PRINCIPAL CITIES PROVIDE
SNAP-ON SERVICE TO ALL IMPORTANT INDUSTRIAL AREAS

Tool stocks are warehoused at branch offices to afford fast delivery to customers everywhere. For prompt service, address

communications to the branch address shown on this catalog cover. Key letters identify branch territories on opposite map.

- | | | | | |
|--|--|---|--|--|
| 1 ALBANY 5, N. Y.
546 Clinton Ave. | 11 DALLAS 1, TEXAS
2932 Commerce St. | 21 LOS ANGELES 14, CALIF.
1717 W. 6th St. | 40 REGINA, SASK.
2070 Albert St. | 36 SYRACUSE 3, N. Y.
323 Irving Ave. |
| 2 ATLANTA 3, GA.
246 Ivy St., N. E. | 12 DENVER 3, COLO.
1050 Broadway | 22 MILWAUKEE 3, WIS.
2600 W. State St. | 32 RICHMOND 20, VA.
1617 West Broad St. | 37 TOLEDO 2, OHIO
1428 Adams St. |
| 3 BALTIMORE 18, MD.
1209 E. 25th St. | 13 DETROIT 2, MICH.
93 Piquette Ave. | 23 MINNEAPOLIS 3, MINN.
1218 Harmon Place | 33 SAN FRANCISCO 2, CALIF.
635 Golden Gate Ave. | 38 TORONTO 17, ONT.
130 Laird Drive
(Station K, Leaside) |
| 4 BOSTON 35, MASS.
116 N. Beacon St.
(Brighton District) | 14 EDMONTON, ALBERTA
10232 103rd St. | 24 MONTREAL 15, QUEBEC
751 Jean Talon St. West | 34 SEATTLE 22, WASH.
1501 Olive Way | 39 VANCOUVER, B. C.
1043 Davie St. |
| 5 BROOKLYN 25, N. Y.
1649 Bedford Ave. | 15 FARGO, N. DAK.
421 N. P. Ave. | 25 NEWARK 6, N. J.
823 Sandford Ave. | 35 ST. LOUIS 3, MO.
2647 Washington Blvd. | 40 WINNIPEG, MANIT.
238 Garry St. |
| 6 BUFFALO 13, N. Y.
628 W. Utica St. | 16 HOUSTON 3, TEXAS
1810 LaBranch St. | 26 NEW ORLEANS 13, LA.
1040 Comp St. | | |
| 7 CHARLOTTE 6, N. C.
915 S. Clarkson St. | 17 INDIANAPOLIS 2, IND.
848 Fort Wayne Ave. | 27 NEW YORK 56, N. Y.
397 East 167th St. | | |
| 8 CHICAGO 16, ILL.
2023 Michigan Ave. | 18 JACKSONVILLE 6, FLA.
1602 Walnut St. | 28 OKLAHOMA CITY 3, OKLA.
901 N. Hudson St. | | |
| 9 CINCINNATI 6, OHIO
605 E. McMillan St. | 19 KANSAS CITY 2, MO.
3635 Main St. | 29 OMAHA 2, NEBR.
109 S. 24th St. | | |
| 10 CLEVELAND 15, OHIO
2912 Euclid Ave. | 20 LONDON, ONTARIO
111 Mt. Pleasant Ave. | 30 PHILADELPHIA 30, PA.
1710 Fairmount Ave. | | |
| | | 31 PITTSBURGH 8, PA.
7007 Kelly St. | | |

INDUSTRIAL AND RAILROAD DEPT.
3213 - 60th St., Kenosha, Wis.

INTERNATIONAL DIVISION
8028 - 28th Ave., Kenosha, Wis., U.S.A.
Cable Address: "Snapon." All Codes

SERVING BUSINESS EVERYWHERE WITH TOOLS FOR BETTER SERVICE.

SEE WHAT YOU BUY . . . BUY WHAT YOU NEED



The **Snap-on** man calls regularly at your shop . . .



At regular intervals the Snap-on trained man calls at your shop. He is there to help you select the right tool for the job. Thrown into contact with hundreds of America's finest mechanics each week, he learns new service techniques which help him recommend proper tools for every job. That's why the Snap-on man is so welcome in garages and service shops all over the United States and Canada.

You look at his sample kit . . .

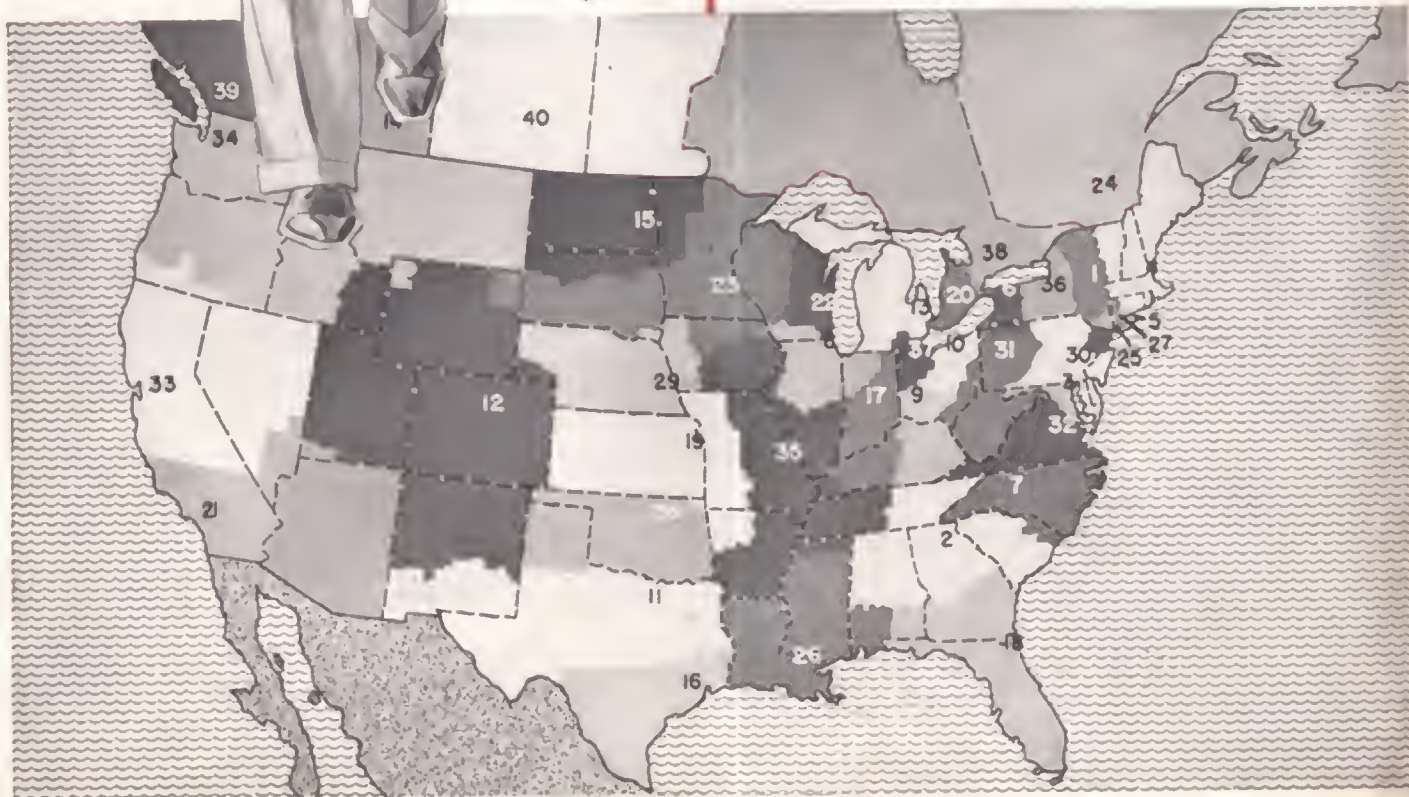


Before you buy you can see and feel the tools. You can note their superb design—how the weight is scientifically distributed so they are easier, less tiring to use . . . how sturdily they are built and how well they are finished. That is why better mechanics everywhere make Snap-on's their choice of tool equipment. They know that good tools help them to turn out good work—faster.

You try the tool . . .



Another advantage of having the Snap-on man call at your shop is the fact that you can try the tool right on the job. You can see for yourself how it fits into the work you are doing. You can see how Snap-on tools are designed and constructed to make each job easier to do. You can "feel" the quality. If you have any questions, ask the Snap-on man. He is a "good fellow" to know.



RED-CAP WELDED STEEL TOOL CABINETS

for Lifetime Service



THIS BEAUTIFUL SNAP-ON ROLL-CAB COMBINATION IS BUILT TO HOLD THE LARGEST TOOL ASSORTMENT

KR-361 Red-Cap Combination Chest and Roll-Cab. Here is truly the last word in tool cabinets . . . so far ahead of any similar equipment that there is absolutely no comparison. It was created from ideas submitted by top-notch mechanics who told us just what they wanted—how they wanted drawer space arranged to put every tool in place where it could be instantly found, and with plenty of room for everything from midget wrenches to equipment like pullers or electric drills—why they wanted a cabinet on large, easy-running wheels so it could be rolled right over to the job.

This is our largest and finest tool storage

equipment—double weight steel, welded and reinforced for strength and rigidity, is used throughout—but in addition to being big, strong and convenient, it is also an impressive looking addition to any shop with its rich red baked-on enamel finish and chromium trim. When you roll this cab to your customer's car—equipped with a complete selection of Snap-on service tools to handle every operation—your customer quickly gets the idea that here is a mechanic he can have confidence in to service his car properly and speedily . . . here is a shop that offers a superior service to its customers. Set a new standard in your shop with a Snap-on Roll-Cab.



RED-CAP ROLL CAB

KR-302 Red-Cap Roll-Cab. There's a lot of room in this big cabinet for those larger pieces of your equipment . . . four big, roomy drawers and an open section that will be just the place for electric drill, pulling equipment, or other large tools. Now fitted with 3" plate type silent rubber casters (2 swivel and 2 fixed), this cabinet rolls easily to any part of the shop—even when fully loaded. Piano type hinges run full door length . . . handles are large, heavily chromium plated with



Closed view

tumbler type locks. Drawers pull easily on No-spill slide runs. Height 30", length 32", width 16". Drawers are 2", 4" and 6" high. Open compartment 9½" deep. Shipping weight 138 lbs., net weight 115 lbs. Finely finished in red enamel.

RED-CAP SUPERCHEST

KR-61 Red-Cap Superchest. Overall size 31" long, 15" wide and 17" high. Top compartment divided into four sections . . . one section can accommodate the KTR-1 Tote Tray (page 6).

3 drawers 8¼" wide, 13" long and 1" high for small tools.
1 drawer 27¼" long, 13" wide and 1" high.



Closed view

2 drawers 27¼" long, 13" wide and 1½" high.
1 drawer 27¼" long, 13" wide and 3¼" high.

This big Super-Chest will hold all your hand tools and keep them segregated the way you find most convenient for fast selection and easy checking. Drawers have Non-spill slide runners for easy action—holds drawers open without tipping—cannot spill contents. Folding front and dome are fitted with full length piano type hinges and tumbler type lock. Strong trunk handles. Shipping weight 137 lbs., net 122 lbs.

Snap-on ALL STEEL ROLLA-BENCH

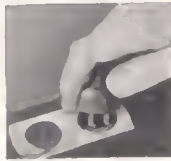
with these FIVE FEATURES



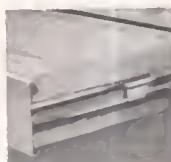
Steel front rolls up easily and disappears inside cabinet. No panel doors to swing out and get in your way.



Adjustable lighting fixture can be raised, lowered or tilted to suit your needs. Chrome plated supporting rods.



Double outlet for using electric tools on bench. Plug in base for extension cord to circuit.



"No-spill" Slide drawers. Will not bind or warp. Open full, they will not sag or fall out.



Large plate casters. Two casters lock to keep bench steady.

DESIGN
PATENT NO.
126,215

CUT OUT "TRUDGING"
AND "TUGGING"



TAKE THE TOOLS
TO THE JOB

KR-300 Snap-on Rolla-Bench. Work with half the effort . . . by taking your tools to the car in a smooth-rolling, step-saving ROLLA-BENCH. Heavy rugged steel construction electrically welded for greater strength and a lifetime of service. Richly finished in baked-on red enamel with chromium trim.

Plenty of Storage Space for Your Tools

Overall dimensions 34" long, 18" wide, 36" high.

Three small drawers—8½" wide, 12½" long, 11½" high.

Top long drawer—26½" long, 12½" wide 11½" high.

Two bottom long drawers—26½" long, 12½" wide, and 31½" high.

Open compartment at bottom is 34" long, 17" wide and 29" high. Shipping weight 179 lbs.—net weight 158 lbs.

Use valuable floor space to better advantage. Get rid of cumbersome, old-fashioned wooden benches that become catch-alls for everything, yet provide inadequate tool storage. Equip with Rolla-Bench and enjoy all the advantages of a portable work bench with all the conveniences of a fine tool chest . . . ample facilities for the orderly arrangement of regular hand tools and storage space for bulkier pieces of equipment. The masonite covered top is ruggedly built to afford a sturdy base for a vise and is fitted with a double electrical outlet for connecting electric driven equipment. The roll-a-front disappears into the back of the cabinet when opened and is locked in closed position with a tumbler type lock (see small illustration) . . . there are no doors to swing open or to dodge around while working. Quiet gliding casters, 2 of which lock the Rolla-Bench where you work.



Snap-on TRIPLE-UNIT TOOL CABINET

USE THE THREE UNITS SEPARATELY OR IN COMBINATION



Drawers will accommodate Heavy Duty bars and handles. No need to leave them lying around and possibly lose them.

"No-spill" slide runs allow the drawers to operate easily without binding, and open fully without spilling contents.

A steel channel beam welded inside lid gives it rigidity and structural strength — prevents warping the top or the hinge.

BIG, SIX DRAWER TOOL CHEST

KR-56 Tool Chest. Overall measurements are 26" long, 12" wide and 14" high. Has 2 extra strong trunk type handles. Lid is reinforced and has full length piano type hinge and tumbler type lock. Top has three tool compartments $3\frac{1}{2}"$ deep; one is $20\frac{1}{4}" \times 8\frac{1}{2}"$; another is $25\frac{3}{4}" \times 3\frac{1}{4}"$ and the third is $8\frac{1}{2}" \times 5"$. Each drawer has slide-runs—cannot pull out or tip—gives convenient storage for small tools, micrometers, gauges, etc., and plenty of room for longer wrenches and tools. There are three small drawers of equal size, $10\frac{1}{2}"$ wide, $7\frac{1}{2}"$ long and 1" high. Three bottom drawers are 24" long and $10\frac{1}{2}"$ wide, one is 1" high, one is $1\frac{3}{4}"$ high and bottom drawer is $3\frac{1}{2}"$ high. Top compartment accommodates KTR-1 Tote-Tray. (Note: trays are not furnished with chest.) Red enamel finish. Shipping weight 80 lbs., net 63 lbs.

TWO-DRAWER SECTION

KR-420 Two-Drawer Section. Can be placed on the top of roll-cab or bench as a base for the above chest, or two or more sections can be stacked together to provide as many storage drawers as you need for tool crib or other use. Each drawer has tumbler type lock and no-spill slide-runs, and measures $23\frac{1}{4}" \times 11\frac{3}{4}" \times 3"$. Overall measurements are 26" x 12" x 8" high. Corner guides keep KR-56 Chest or additional sections in place. Baked on red enamel is standard finish, but grey finish to match older Snap-on units is available on special order. Net weight is 31 lbs. Shipping weight 35 lbs.

EASY MOVING ROLL-CAB

KR-351 Roll-Cab. Designed as a companion for tool chest shown above. The roomy drawers and lower compartment will hold large equipment. The front panel locks to protect contents and slides under the drawers when cab is in use. Overall size is $26\frac{1}{4}"$ long, 18" wide, $20\frac{1}{2}"$ high. Two reinforced drawers have no-spill slide runs and are $21\frac{1}{2}" \times 16\frac{3}{4}" \times 4"$ high. Open compartment is 26" x $17\frac{3}{4}" \times 8\frac{1}{2}"$ high. Extra heavy gauge steel is used to give rigidity and durability for hard, long service. Easy gliding 3" casters, (2 swivel, 2 fixed). Baked-on red enamel finish. Net Wt. 74 lbs., Sh. Wt. 84 lbs.

KR-357 Roll-Cab Combination. A two unit combination of KR-351 Roll-Cab and KR-56 Tool Chest.

KR-358 Three-unit Combination. For greatest working convenience we recommend the combination of KR-56 Chest, KR-420 Section and KR-351 Roll-Cab.



TOTE TRAY

(A) KTR-1 Tote Tray. Fits the top compartment of the chest shown above. Has socket compartment and provides a convenient holder for the tools actually in use. Tray size is $20\frac{1}{2}" \times 8\frac{1}{2}" \times 3\frac{1}{2}"$ high. Baked-on red enamel finish.

SKID TRAY FOR KR-56 CHEST

(B) KR-456 Skid Tray. In some types of maintenance work tool chests are skidded over floors or rough ground, on and off trucks, etc. This skid tray fits and bolts onto the KR-56 Chest to give a reinforced bottom for such work. Two steel runners underneath take the wear and make it easier to skid the loaded chest.

ALL STEEL MECHANIKIT

Best Made for Tough Rugged Work



Snap-on
MECHANIKIT

**Unequalled at its Price
for Ruggedness and Utility**

KR-21 Mechanikit. Designed to help the mechanic work more efficiently by putting all his tools within easy reach. Offers many features which have made it the choice of thousands of professional mechanics.

The generous overall size—21" long, 8 $\frac{3}{4}$ " wide and 11 $\frac{1}{4}$ " high provides ample storage space for the average kit of tools and wrenches. The lid is gable shaped to give maximum tool space and provides the needed height for the handle of the KTR-1 Tote-Tray which fits snugly in the top compartment. Lid has full length piano-type hinge.

Top drawer is 19 $\frac{1}{4}$ " long, 7 $\frac{3}{4}$ " wide and 1 $\frac{1}{2}$ " high with four compartments for small tools. Bottom drawer is 19 $\frac{3}{4}$ " by 7 $\frac{3}{4}$ " and 3" high and has a sliding tray for very small tools and parts. Each drawer is fitted with "no-spill" slide runs which permit opening drawers without them sagging or falling out. Drawers glide easily even when fully loaded.

Heavy gauge steel is electrically welded for greatest rigidity and strength. When opened, the piano-hinged front drops down out of the way of the drawers. When closed the front secures to top with snap fasteners. Has a strong padlock hasp. For easy carrying the kit has a sturdy leather suitcase type handle. Finished in baked-on red enamel.

KTR-1 Tote-Tray included as part of this chest is 20 $\frac{1}{4}$ " long, 8" wide and 3 $\frac{1}{4}$ " high and has a full length, steel handle and a separate socket compartment.

METAL SLIDE DRAWER UNITS

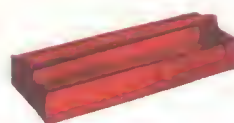


KR-410 Slide Drawer. Solves your problem of extra drawer space. Top has four screw holes and can be fixed to underside of wood benches, tables or cabinets. Two of these units fit the KR-390 Roll-

Cab shown on page 101. No-spill slide runs provide easy opening and prevent drawer from falling out when extended. Outside dimensions are 18" front to back, 13 $\frac{3}{4}$ " wide and 3" high. Heavy gauge spot welded steel—baked-on red enamel finish to match other Snap-on Chests and Cabinets.

MECHANICS CHEST

With Many Superior Features



Snap-on

MECHANICS TOOL CHEST

Locking Drop Front—Big, Sturdy Drawers

KR-53 Tool Chest. This sturdily built tool chest is a little smaller than the KR-56 chest shown on opposite page, yet it incorporates all the features that have made the larger chest so popular. Constructed of heavy gauge steel, the KR-53 is spot welded throughout to make it extremely strong and rigid. The three drawers are equipped with "no spill" slide runs to allow them to open and close easily even when loaded and to open fully without tipping or pulling out. The top compartment is divided into three sections, the largest of which is designed to hold the KTR-2 Tote Tray described below. This tote tray does not come with the chest but is available as a separate unit. Heavy, trunk-type handles are welded to the ends of the chest for easy lifting and moving.

The front drop-panel is attached to the cover with a full length piano hinge and fits inside the cover and out of the way when the chest is open. When closed, the panel covers all the drawers completely and locks in place with a tumbler type lock.

When closed, the KR-53 Chest measures 24" long, 10 $\frac{1}{2}$ " wide, and 11 $\frac{1}{4}$ " high. The top compartment, which is divided into three sections, measures 23 $\frac{1}{4}$ " long, 9 $\frac{3}{4}$ " wide, and 1 $\frac{1}{4}$ " deep. The three drawers are all 21 $\frac{3}{4}$ " long, 9 $\frac{1}{4}$ " wide, and 1 $\frac{1}{2}$ ", 2" and 3 $\frac{1}{4}$ " deep. Net weight is 39 lbs., shipping weight 43 $\frac{1}{2}$ lbs. Finished in red baked-on enamel.

TOOL TOTE-TRAY ILLUSTRATED ABOVE

KTR-2 Tote-Tray. Fits inside the top compartment of the KR-53 Tool Chest. Partitioned to accommodate socket equipment. Size 19" long, 7" wide and 2 $\frac{3}{4}$ " high. Red enamel finish.

New Snap-on Coaster Cab

Universal Midget Kit



Modern! Convenient! Practical!
Rolls Right to the Job—No Lost Time
Hunting for Tools

KR-377A Coaster Cab. (Welded construction). Once you install this sturdy Coaster-Cab in your shop you would not give it up for any price because of the increased efficiency it makes possible. Provides convenient storage for all your tools from Midget units to big drills and gear pullers. Overall measurements are 26 $\frac{1}{4}$ " long, 18 $\frac{1}{2}$ " wide and 36" high. For the mechanic who wants the best at a moderate price, here is the bench to buy.

Four Sturdy, Roomy Drawers

Ample drawer space for wrenches and hand tools, even long sliding bars and nut spinners. For extra convenience drawers are fitted with "no-spill" slide runs for easy opening at all times and to prevent drawers from sagging or falling out.

Two top drawers are 21" long, 17" wide and 2" high.
One drawer is 21" long, 17" wide and 3" high.
One drawer is 21" long, 17" wide and 4 $\frac{1}{2}$ " high.
Lower compartment is 26 $\frac{1}{4}$ " long, 18 $\frac{1}{4}$ " wide and 14" high.

A "drop-in" front panel encloses the lower compartment and slides into a rack under the lower drawer. One padlock locks the entire contents. Heavy gauge, flat metal top provides plenty of working space. Oversize casters, (2 swivel, 2 fixed) roll your "Coaster-Cab" easily and quietly to the job. The attractive red enamel finish is oven baked at high temperatures so the cabinet will keep that new, glossy finish indefinitely. Net weight: 153 lbs., Shpg. Wt. 162 lbs.

KR-377 Coaster-Cab. (Bolted construction as illustrated.) Drawers are spot welded. This model is available either assembled as shown or knocked down.

"MASTER" PADLOCKS—KEEP YOUR TOOLS SAFE

Strongest case construction—laminated under 300,000 lbs. pressure forming a case stronger than a solid steel block, highest grade brass cylinder,

nickel-silver pin tumbler mechanism, super strength alloy steel shackle, heavy solid brass locking lever, cannot jar open.

No. 1 Master Lock 1 $\frac{1}{2}$ " steel case. Chrome-nickel steel tapered shackle hardened to resist file, saw or cutter; diameter $\frac{1}{4}$ ", vertical clearance $\frac{1}{2}$ ", our best padlock

No. 3 Master Lock 1 $\frac{1}{2}$ " steel case. Chrome-nickel steel shackle hardened to resist file, saw or cutter; diameter $\frac{3}{8}$ ", vertical clearance $\frac{5}{8}$ ". A dependable high grade padlock

No. 7 Master Lock 1 $\frac{1}{2}$ " steel case. Manganese steel shackle, diameter $\frac{3}{16}$ ". Vertical clearance $\frac{1}{10}$ ". Smaller than the others but sturdily built for dependable service



Built to Hold Complete Assortments of Small Tools for Ignition, Carburetor, Radio Service, etc.

KR-65-B Universal Midget Kit. Isn't this the kind of a small cabinet you have always wanted—with ample space to hold a complete set of Midget wrenches of all types and all sizes? A chest that is only 11 $\frac{3}{4}$ " long, 7 $\frac{3}{4}$ " wide and 3 $\frac{1}{2}$ " high. That is what you get in this beautiful Universal Midget Kit. Actually you will save its small cost by eliminating the loss of small tools, for more tools are lost, "loaned" or mislaid than are ever worn out. Protect them in this Midget Kit which is so arranged that there is a definite place for every tool.

Easy to Find the Tool You Want

Its design and construction adapt it for use by any man who has a kit of small tools he wants to safeguard. There are no drawers to pull out . . . no trays to remove for the top section as shown in the picture simply moves back on sliders exposing the entire contents of the lower compartment making every tool visible at a glance. Any tool can be removed without fumbling around to find it. The box is divided into ten compartments. The bottom section is large enough to hold chisels, punches, screw drivers, ferret handles and other miscellaneous tools.

Sturdily Built—Conveniently Carried

Exceedingly well made of heavy gauge steel with spot welded construction throughout. Equipped with two sturdy hinges and easy-to-carry metal handle. A tumbler type lock secures the contents. Baked-on red enamel finish. Once you have segregated your small tools in this chest, you will never think of leaving them anywhere else.



Snap-on INDUSTRIAL ROLL-CAB

The Biggest and Best Roll-Cab
We Have Ever Constructed for
Industrial Maintenance Work



**HELPS TO PUT MORE WORK
MINUTES INTO EVERY
MAINTENANCE HOUR . . .
CONSERVES AVAILABLE
LABOR AND CUTS "DOWN-
TIME" TO A MINIMUM**

KR-396 Industrial Roll-Cab. The efficiency of any maintenance department can be increased to a considerable degree with the use of this industrial roll-cab. All necessary tools and equipment can be rolled right to the job eliminating the need for repeat trips to tool crib. The top has a masonite surface on a reinforced steel base and provides an excellent work bench and sturdy support for vises, bench grinders, etc., as illustrated. (This equipment is not included with the roll-cab.) A lock bar and padlock secures all drawers and bottom compartment. Front and back doors have tumbler type locks. Drawers all have "non-spill" slide runs for easy action and to prevent "pull-outs." Powerful foot brake locks the cab to floor. Large, rubber covered wheels (2 swiveled) roll easily over any type of floor. Lamp swivels as required and accepts either standard or reflector type bulb.

SPECIFICATIONS

Roll-Cab is 45 $\frac{1}{4}$ " long, 24 $\frac{1}{4}$ " wide and 30" high.
Three top drawers are 15 $\frac{1}{4}$ " long, 7 $\frac{1}{4}$ " wide and 1 $\frac{1}{4}$ " high.
One drawer is 25 $\frac{1}{4}$ " long, 17 $\frac{1}{4}$ " wide and 1 $\frac{1}{4}$ " high.
Two drawers are 25 $\frac{1}{4}$ " long, 17 $\frac{1}{4}$ " wide and 3 $\frac{1}{4}$ " high.
One drawer is 25 $\frac{1}{4}$ " long, 17 $\frac{1}{4}$ " wide and 4 $\frac{1}{4}$ " high.
Bottom space is 44 $\frac{1}{4}$ " long, 23 $\frac{1}{4}$ " wide and 8 $\frac{1}{4}$ " high.
Side compartment is 23 $\frac{3}{4}$ " long, 12" wide and 27 $\frac{1}{4}$ " high.
Back cabinet has 20 compartments for nuts, bolts, etc.
Height of work top from floor is 36 $\frac{3}{4}$ ".
Two electrical outlets for power tools and light.
Electrical inlet at rear for line connection.
Diameter of fixed wheels is 8".
Diameter of swivel wheels is 5".
Finish: Baked on red enamel. Net weight is 388 lbs.



Snap-on MECHANIKITS

Made of Heavy
Steel for Strength

Spot-Welded
for Rigidity



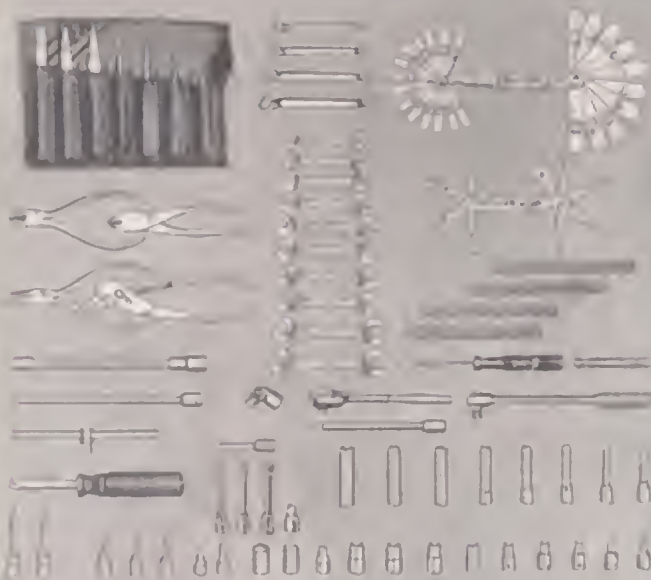
LARGE SIZE MECHANIKIT

KR-25 Mechanikit. Measures 21 $\frac{1}{4}$ "x8 $\frac{3}{4}$ "x7 $\frac{1}{4}$ ". Tray 20 $\frac{1}{4}$ "x8"x3 $\frac{1}{4}$ ". Plenty of room to carry all the tools a mechanic will need on the job. Built to give you a large size sturdily constructed tool chest at low cost. Made of heavy gauge steel for strength. Electrically spot welded for lasting rigidity. Three good steel hinges—large leather handle-grip. Two lever-type fasteners and padlock hasp. Partitioned lift-out tool tray with sturdy carrying handle is included with the Mechanikit. Red Enamel Finish.

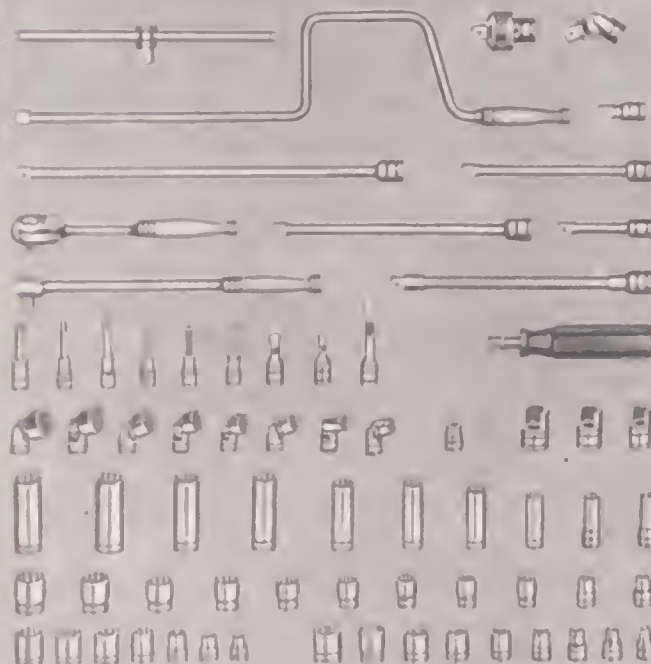
MEDIUM SIZE MECHANIKIT

KR-24-A Mechanikit. Measures 20"x7 $\frac{3}{4}$ "x5 $\frac{1}{2}$ ". Tray 19"x7"x2 $\frac{1}{2}$ ". Slightly smaller than Mechanikit KR-25, but a real box value for the man who requires a smaller tool box. Made of the same heavy weight steel—electrically welded for added strength. Two strong hinges—large carrying handle. Two lever-type snap fasteners and padlock hasp. Large partitioned lift-out tool tray with carrying handle is furnished with the Mechanikit. Red enamel finish. An ideal box for home or shop.

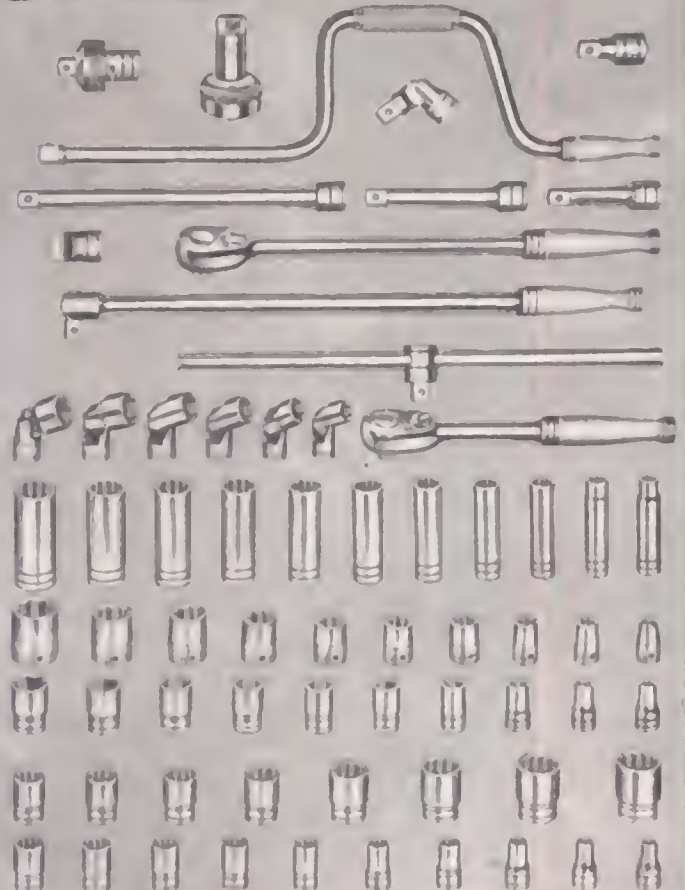
SET OF 322 **Snap-on** TOOLS for



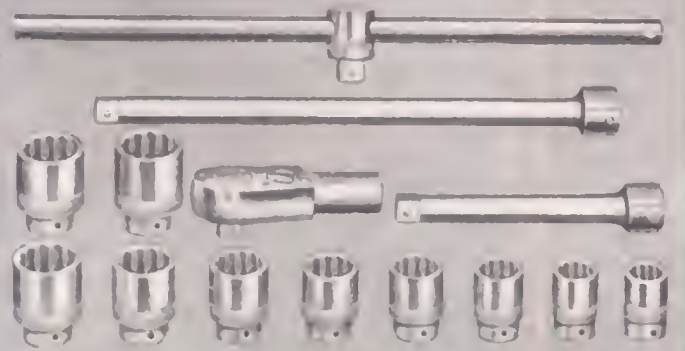
1173 TM MIDGET SET



271 F FERRET SET



368 A M MASTER SET



414 HD HEAVY DUTY SET



KR-61 Chest

Giant size for quick location of tools. A big time saver. Complete story telling its many features is told on page 4.



KR-361 Combination

Tremendous amount of storage space for the alert mechanic. See it fully described and shown in color on page 4.



KR-300 Rollo-Bench

Saves countless hours of a mechanic's time. You'll find it fully described and illustrated in color on page 5.

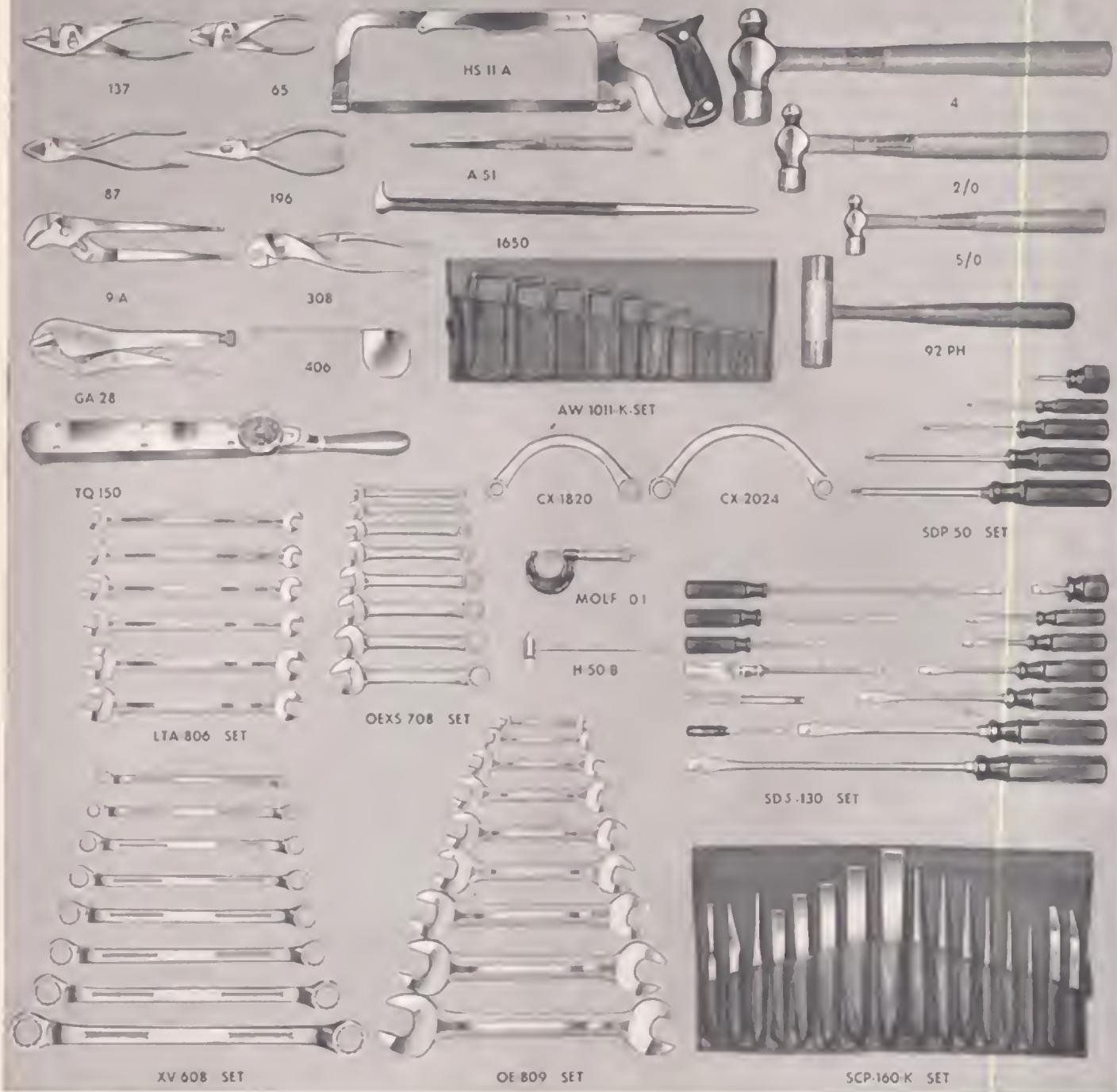
5322-GS UNIVERSAL TOOL SET

Having the proper tool at your fingertips for immediate use is so important. Not only does it insure a quality, workmanlike job, the earmarks of a skilled mechanic . . . but it saves countless hours of maintenance or service time. The above set has been especially created to handle Industrial maintenance work as well as auto service. Complete contents of the set are listed on opposite page.

Suitable Cabinets for Above Set

The storage cabinets pictured at left are shown in color and fully described on pages 4 and 5. Drawers are especially designed to allow tool selection instantly. With this combination of 322 tools and cabinet you have a complete repair shop, with every tool at hand conveniently arranged to permit you to begin the repair job immediately and finish it speedily. Every tool has been selected on merit and need in year 'round maintenance and service operations.

Industrial Maintenance and Product Servicing

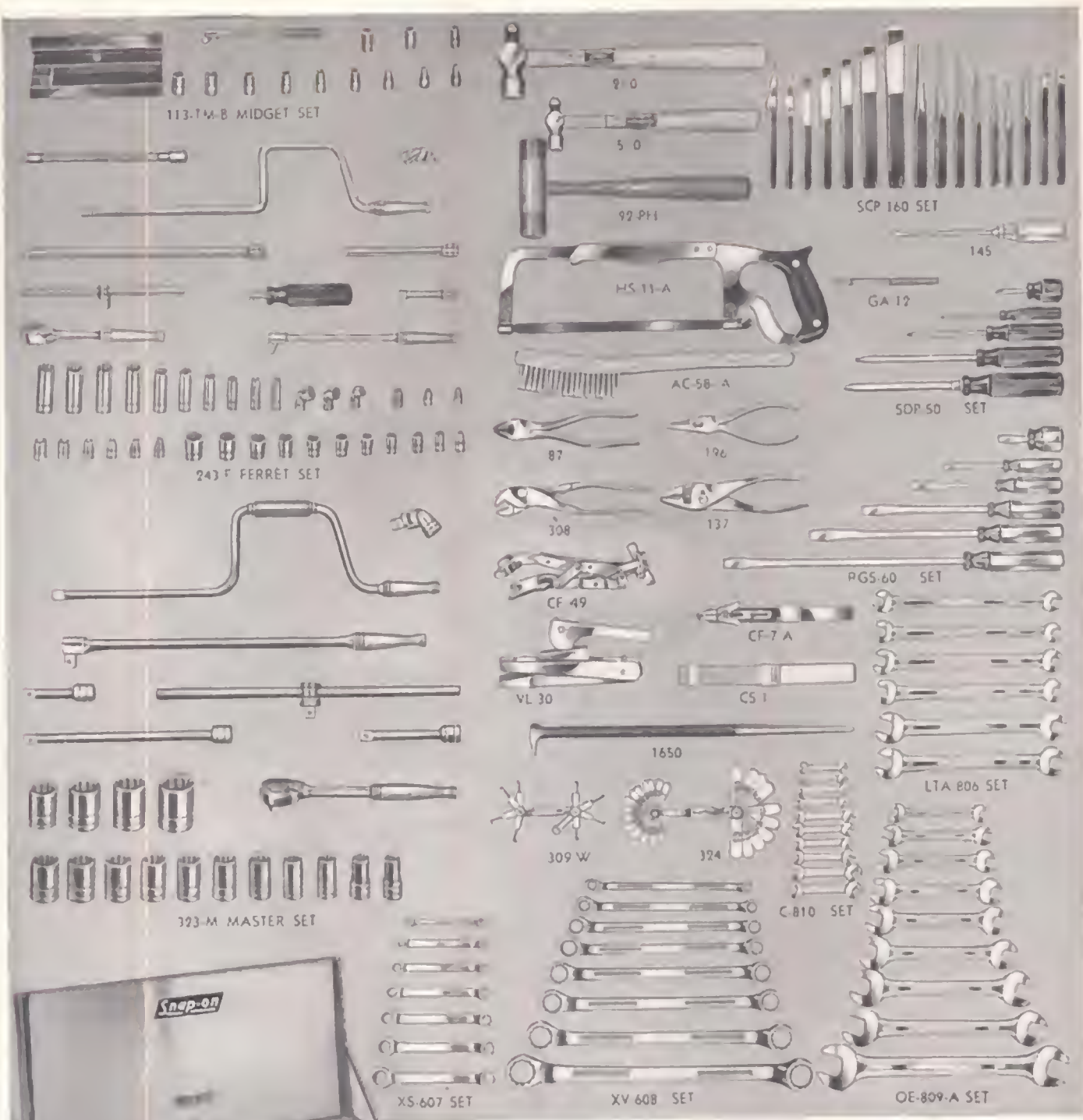


CONTENTS OF 5322-GS UNIVERSAL TOOL SET SHOWN ABOVE AND ON PAGE 10

Stock No.	Description	Story on Page
1173-TM	Midget Socket Wrench Set ($\frac{1}{8}$ " Sq. Drive)	32
271-F	Ferret Socket Wrench Set ($\frac{1}{8}$ " Sq. Drive)	26
309A-M	Master Socket Wrench Set ($\frac{1}{2}$ " Sq. Drive)	21
414-MD	Heavy Duty Socket Wrench Set ($\frac{3}{8}$ " Sq. Drive)	20
QC-009	Open End Wrench Set ($\frac{1}{2}$ " to $1\frac{1}{2}$ " Sizes)	46
TX-600	Boxcock Set ($\frac{3}{8}$ " to $1\frac{1}{2}$ " Sizes)	34
OEXS-700	Combination Wrench Set ($\frac{3}{8}$ " to $\frac{3}{4}$ " Sizes)	43
CX-1020	Half Moon Boxcock ($\frac{1}{2}$ " & $\frac{3}{4}$ " Sizes)	43
CX-2024	Half Moon Boxcock ($\frac{3}{8}$ " & $\frac{1}{2}$ " Sizes)	42
LTA-900	Tappet Wrench Set ($\frac{1}{2}$ " to $1\frac{1}{2}$ " Sizes)	48
AW-3011-K	Hex Head Wrench Set ($\frac{3}{16}$ " to $\frac{1}{2}$ " Sizes)	32
SOS-130	Octo-Grip Screw Driver Set (13 Drivers)	50
SOP-50	Phillips Screw Driver Set (5 Drivers)	50
M-50-B	Offset Hammer Head Screw Driver	53
SCP-100-K	Chisel & Punch Set (16 tools)	54
1050	Pry Bar and Linning-up Punch	55
9-A	9" Water Pump Pliers	56
137	7" Heavy Duty General Use Pliers	56
105	5" Light Weight Gripping Pliers	57

Stock No.	Description	Story on Page
87	7" Diagonal Cutting Pliers	57
100	6" Needle Nose Pliers	57
300	7" Battery Terminal Pliers	58
2 0	Ball Peen Hammer 12 oz.	59
5 8	Ball Peen Hammer 4 oz.	59
4	Ball Peen Hammer 2 lb	59
97-PH	Plastic Tip Hammer	59
A-51	Junior Hack Saw Frame	64
H5-11-A	Standard Hack Saw Frame	64
YQ-150	Torqueometer (Zero to 150 ft. lb.)	34
MDLF-01	Micrometer (Zero to 1" cap.)	65
GA-20	10" Vise-Grip Wrench	44
406	Steel Tape Rule (6 ft. length)	65

5322-GS Universal Tool Set. Tools only
5322-GS-B Set. Complete in KR-61 Super Chest.
5322-GS-BA Set. Complete in KR-361 Super Chest and Roll-Cab
Combination.
5322-GS-BB Set. Complete in KR-300 Rolla-Bench



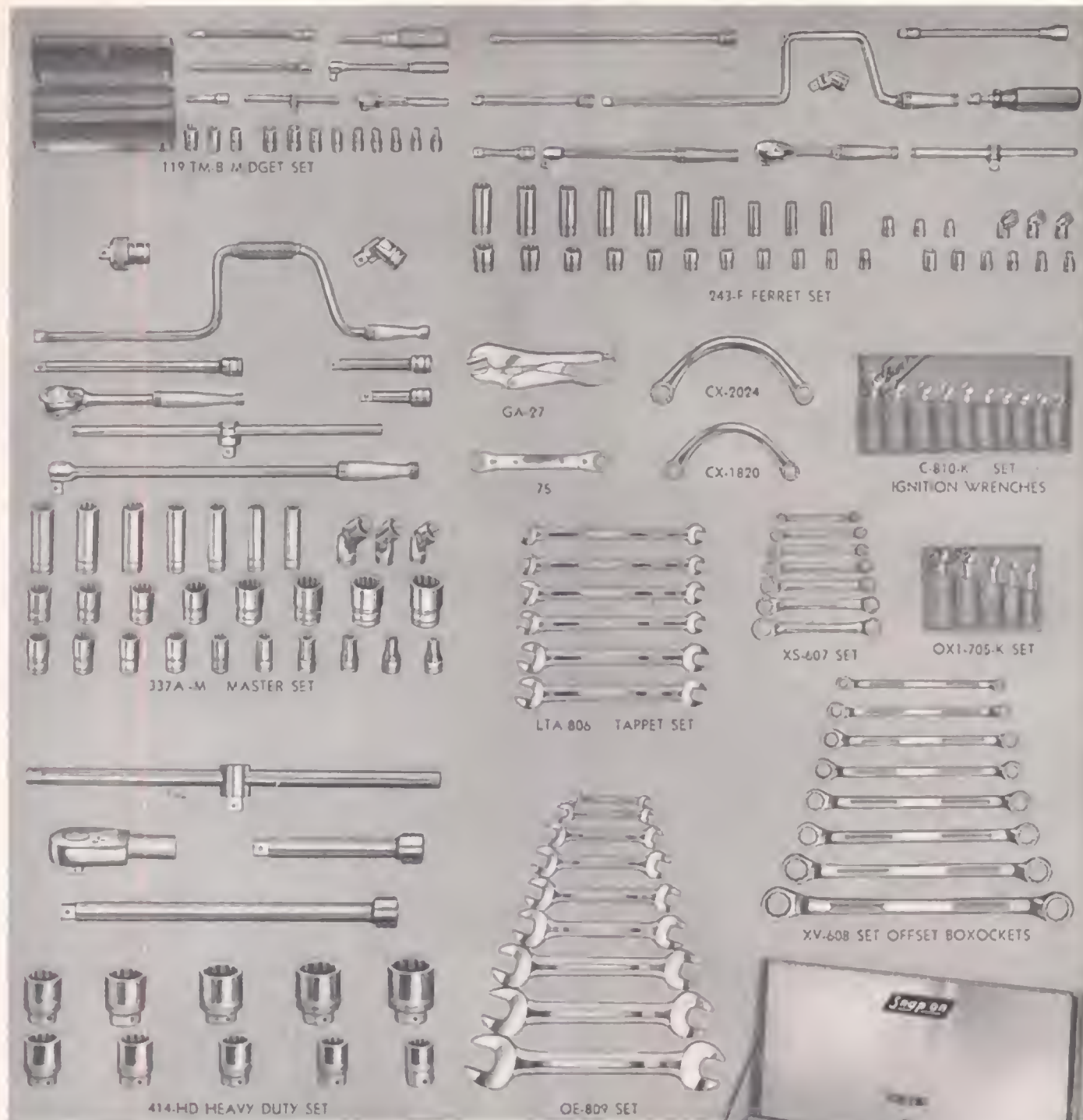
This Chest and its companion Roll-Cab are described in detail on page six.

5164-GS-B MECHANICS STANDARD SERVICE SET

5164-GS-B Standard Service Set. A versatile set of 164 wrenches and automotive service tools including sockets $\frac{3}{16}$ " to $1\frac{1}{2}$ " with popular types of handle equipment in $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " square drives; boxockets $\frac{5}{16}$ " to $1\frac{1}{4}$ "; open ends $\frac{7}{32}$ " to 1". Set includes the KR-56 Tool Chest.

Stock No.	DESCRIPTION	Story on Page	Stock No.	DESCRIPTION	Story on Page
113-TM-B	Midget Set in Box	30	2-0	Ball Peen Hammer	59
243-F	Ferret Set	27	82-PH	Plastic Tip Hammer	59
323-M	Master Supreme Set	Cover	324	Feeler Gauge	59
XV-608	Boxocket Set	34	309-W	Spark Plug Gauge	59
XS-807	Dwarf Boxocket Set	39	HS-11-A	Spark Plug Frame	64
OE-809A	Open End Wrench Set	46	CS-1	Carbon Scraper	73
LTA-808	Tapset Wrench Set	48	AC-58-A	Wire Brush	73
C-810	Ignition Wrench Set	49	CF-49	Valve Lifter	61
RG5-60	Screw Driver Set	52	CF-7-A	Valve Key Replacer	61
145	Spark Tool Screw Dr.	51	VL-30	Valve Spring Compr.	61
GA-12	Screw Starter	53	137	Gripping Plier	56
SOP-50	Phillips Screw Driver Set	51	196	Needle Nose Plier	57
SCP-100	Chisel and Punch Set	54	87	Diagonal Cutter	57
1650	Pry Bar	55	308	Battery Plier	54
92-0	Ball Peen Hammer	59	KR-56	Metall Tool Chest	6

5164-GS Set. Same set as above but without chest.



5162-GS-B ALL-PURPOSE NUT TURNING SET

5162-GS-B All-Purpose Nut Turning Set. This assortment of 162 tools contains every standard wrench size from $\frac{3}{16}$ " up to $1\frac{1}{2}$ " and is the ideal nut turning set for industrial and marine maintenance work, aviation and automotive service, public utility shops, hotel, hospital and school maintenance, etc. Complete information on the various tool groups which make up this set can be found by referring to the pages listed below. The socket wrenches are segregated into four groups having $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " square drive and the groups include handle equipment to handle every type of job. Complete set includes the KR-56 tool chest shown at right.

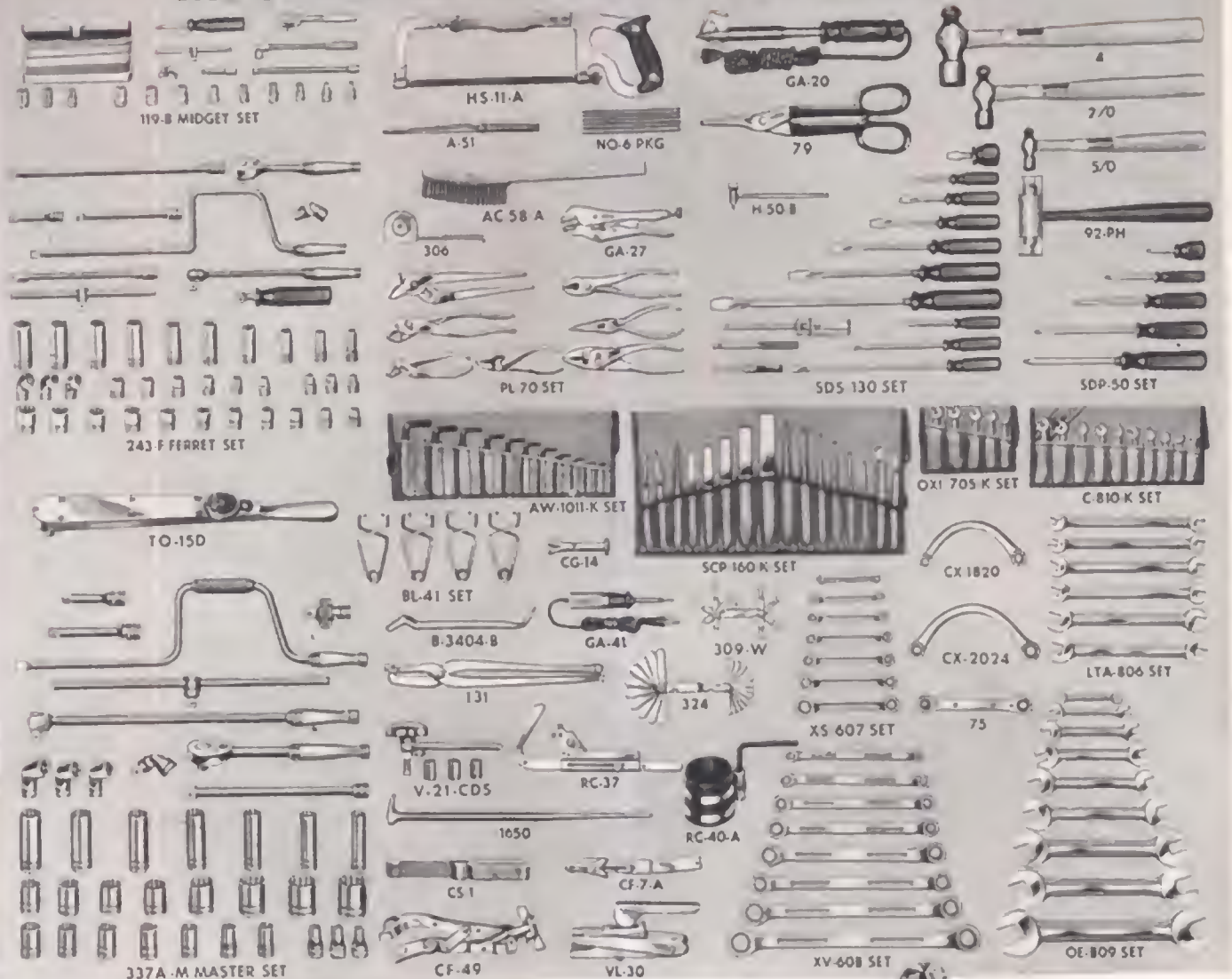
Stock No.	DESCRIPTION	Story on Page	Stock No.	DESCRIPTION	Story on Page
119-TM-B	Midget Set in Box	30	CX-2024	Half Moon Boxsocket	42
243-F	Ferret Set	27	75	Rateketing Boxsocket	42
337A-M	Master Set	21	LTA-806	Tappet Wrench Set	45
414-HD	Heavy Duty Set	20	OX1-705-K	Midget Combination Set in Kit	45
XV-608	Boxsocket Set	38	C-810-K	Ignition Wrench Set in Kit	49
XS-607	Dwarf Boxsocket Set	39	GA-27	Vise-Grip Wrench	44
OE-809	Open End Set	46	KR-56	Metal Tool Chest	6
CX-1820	Half Moon Boxsocket	42			



This Chest and its companion Roll-Cab are described in detail on page six.

5162-GS Set. Same set as above but without chest.

MECHANICS GENERAL PURPOSE SET



228 TIME SAVING TOOLS FOR THE AUTOMOTIVE SERVICE MECHANIC

Wasted hours mean loss of income. Get maximum working efficiency with this mechanic's complete tool kit. Contains most needed tools for general auto repairs. These tools when fitted into your choice of 3 storage cabinets (shown in color on pages 6 and 8) mean every tool at your finger-tips for instant use . . . saves countless hours of lost motion . . . means extra earnings from time saved.

Stock No.	Description	Story on Page	Stock No.	Description	Story on Page
119-TM-B	Midget Tool Set	30	324	Feeler Gauge	59
243-F	Ferret Tool Set	27	389-W	Spark Plug Gauge	59
337A-M	Master Tool Set	21	A-51	Hack Saw Frame	64
XV-800	Boxsocket Wrench Set	38	6	12 Blades for A-51	64
XS-802	Dwarf Boxsocket Wrench Set	39	HS-11-A	Hack Saw Frame	64
DE-809	Open End Wrench Set	46	TQ-150	Torqueometer	34
CX-1820	Half Moon Boxsocket	42	360	Steel Tape Rule	65
CX-2024	Half Moon Boxsocket	42	70	Tinner's Snips	103
75	Ratcheting Boxsocket	42	CF-49	Valve Lifter	61
LTA-800	Tapset Wrench Set	18	CF-7-A	Valve Key Replacer	61
DX1-205-K	Midget Combination Wrench Set	29	VL-30	Overhead Valve Spring Compressor	61
C-810-K	Ignition Wrench Set	40	V-21-CD5	Valve Adjusting Tool	61
GA-22	Vise-Grip Wrench	14	CS-1	Carbon Scraper	73
AW-1011-K	Hex Head Wrench Set	32	RC-40-A	Piston Ring Compressor	80
SDS-130	Screw Driver Set	50	RC-32	Ring Groove Cleaner	83
SDP-50	Phillips Screw Driver Set	51	BL-41	Set of 4 Brake Cylinder Clamps	83
H-50-B	Hammerhead Screw Driver	53	B-3494-B	Brake Adjusting Tool	83
SCP-100K	Chisel and Punch Set	54	CG-14	Brake Shoe Spring Compressor	83
1650	Pry Bar	55	131	Brake Spring Pliers	84
PL-70	Set of Pliers	58	GA-41	Electric Tester	80
2/0	Ball Peen Hammer	59	GA-20	Soldering Iron	59
5/0	Ball Peen Hammer	59	AC-50A	Wire Brush	73
4	Ball Peen Hammer	59			
92-PH	Plastic Tip Hammer	59			



- 5228-GS Mechanic's General Purpose Set. All tools shown above.
 5228-GS-B Set. All tools above in KR-56 Chest (page 6).
 5228-GS-BA Set. All tools above in KR-357 Combination (page 6).
 5228-GS-BB Set. All tools above in KR-377 Coaster Cab (page 8).

FOR THE HARDEST NUT TURNING JOBS



"JUMBO" WRENCHES (1 1/2" Square Drive)

Here's wrench efficiency for your biggest jobs . . . nut-to-nut speed that makes short work of big tie-ups. Here are tools that give the maximum safety factor. Sockets lock securely on the handles and cannot pull off by accident . . . takes only a moment to release them and interchange the units. The high quality of material and workmanship of Snap-on wrenches is beyond comparison, and these, the largest of Snap-on's standard wrenches, are built to out-perform any other similar type of wrench.



JUMBO RATCHET WRENCH

No. 78 Complete Ratchet. Our most powerful ratchet . . . 42 inches of tremendous leverage . . . for toughest nut turning jobs. Every part machined to precision standards. It squeezes into places ordinary large wrenches cannot go . . . it clears most obstructions with room to spare. Conveniently placed lever instantly reverses action. Hardened bearings inserted into the housing minimize normal wear. Every part is made to stand up under the toughest kind of use.

No. 78-Y Ratchet Head. Head diameter 4", head thickness 1 3/4".

No. 55-B Handle. Handle diameter 1 3/8", length 36".



JUMBO SLIDING BAR

No. 55 Sliding Bar. Used as an offset handle, this tool gives you thirty-six inches of brute leverage. Power enough to turn any nut up to 4 3/4" across the flats no matter how tight it might be. Head depth 2 1/4", handle diameter 1 3/8". The bar handle No. 55-B listed above.

No. 55-A Sliding Head only.



JUMBO EXTENSION BARS

Reach down with an extension bar to get those inaccessible nuts. Converts your sliding bar into a tee handle. Built to take the heaviest work.

No. 105 Extension Bar. 10" long, 1 1/2" shank dia.
No. 205 Extension Bar. 20" long, 1 1/2" shank dia.

Industrial Impact Sockets (1 1/2" Sq. Drive)

Stock No.	Wrench Size	Outside Diameter		Overall Length
		Handle End	Socket End	
1P-525	1 1/8"	3 1/8"	3"	3 1/4"
1P-545	1 1/4"	3 1/4"	3"	3 1/4"
1P-565	1 1/2"	3 1/2"	3"	3 1/4"
1P-585	1 3/4"	3 3/4"	3 1/8"	3 1/2"
1P-605	1 7/8"	3 7/8"	3 1/4"	3 1/2"
1P-625-A	2"	4"	3 1/2"	3 1/2"
1P-645	2 1/8"	4 1/8"	3 1/2"	3 1/2"
1P-665	2 1/4"	4 1/4"	3 1/2"	3 1/2"
1P-705	2 3/8"	4 3/8"	3 1/2"	4"
1P-725-A	2 1/2"	4 1/2"	3 1/2"	4 1/4"
1P-765	2 3/4"	4 3/4"	3 1/2"	4 1/4"
1P-805	2 7/8"	4 7/8"	3 1/2"	4 1/4"
1P-825	3"	5"	4"	4 1/4"
1P-845	3 1/8"	5 1/8"	4 1/8"	4 1/4"
1P-865	3 1/4"	5 1/4"	4 1/4"	4 1/4"
1P-905	3 1/2"	5 1/2"	4 1/2"	4 1/4"
1P-945	3 3/4"	5 3/4"	4 3/4"	4 1/2"
1P-965	4"	6"	4 1/2"	4 1/2"
1P-1005	4 1/8"	6 1/8"	4 3/4"	4 1/2"
1P-1045	4 1/4"	6 1/4"	4 3/4"	4 1/2"
1P-1125	4 1/2"	6 1/2"	5 1/4"	5 1/4"
1P-1245	4 3/4"	6 3/4"	5 1/2"	5 1/4"
1P-1485	5"	7"	6 1/2"	5 1/4"

EXTRA HEAVY FOR TOUGH JOBS



SNAP-ON EXTRA HEAVY DUTY LOXOCKET WRENCHES

Trade Mark (lic. Reissue Pat. 19,287)

1" Square Drive

The Loxocket principle makes any combination of these units as safe as a one-piece wrench . . . they lock together securely and will not accidentally come apart . . . a convenient release button allows you to interchange sockets swiftly and easily. Here are tools with the compact power of a prize-fighter's fist . . . with tremendous power and leverage to accomplish more work easier and with less fatigue . . . built to break loose those big rusted-on nuts and bolts or to pull them up to the tightest degree. We recommend this equipment for speeding up the heaviest nut-turning work in truck or bus shops—installation and maintenance on marine and mine machinery—all power plants and transmitting machinery—locomotive shops, etc. Take the worry out of breakdowns by using Snap-on wrenches. Pitch into every repair job with confidence that it will be finished at a definite time . . . and in the shortest time. Units are individually machined from finest alloy steel and are carefully heat-treated for maximum strength and greatest durability.

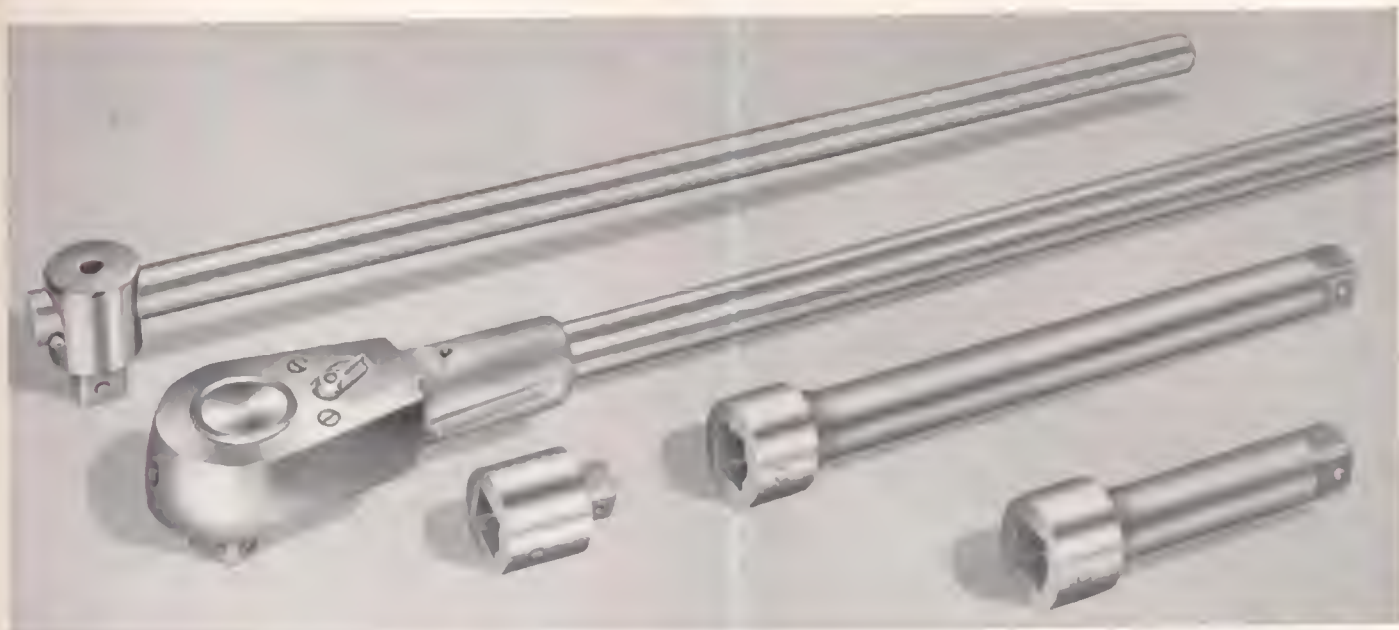
EXTRA HEAVY DUTY HEXAGON LOXOCKETS

Fit companions to the Extra Heavy Duty Handles are the Loxockets that work with them . . . 11 double broached and 6 single broached sockets of precision machined alloy steel, ranging in size from 1 1/16" to 3 1/4". Keep going with these tools that make small work of the big tie-ups—give you adequate wrench performance at all times.



Wrench Size		Stock No.	O.D. Socket End	O.D. Drive End	Overall Length
1 1/16"	Double Broached	LDH-463	2 1/16"	2"	23 1/2"
1 1/8"		LDH-483	2 1/8"	2"	23 1/2"
1 5/8"		LDH-523	2 5/8"	2"	23 1/2"
1 1/4"		LDH-543	2 1/4"	2"	3"
1 3/4"		LDH-563	2 3/4"	2"	3"
1 7/8"		LDH-583	2 7/8"	2 1/8"	3 1/4"
2"		LDH-603	2 3/4"	2 1/8"	3 1/4"
2 1/8"		LDH-643	2 13/16"	2 1/8"	3 3/4"
2 1/4"		LDH-683	3 1/8"	2 1/8"	3 1/2"
2 3/8"		LDH-703	3 1/8"	2 1/4"	3 5/8"
2 1/2"		LDH-723	3 1/4"	2 1/4"	3 3/4"
2 3/4"	Single Broached	L-763	3 3/4"	2 1/4"	3 7/8"
2 1/2"		L-803	3 1/2"	2 1/4"	4 1/8"
2 5/8"		L-843	3 21/32"	2 1/4"	4 1/4"
2 3/4"		L-883	3 13/16"	2 1/4"	4 1/4"
2 11/16"		L-943	4 1/16"	2 3/8"	4 7/8"
3 1/4"		L-1003	4 19/64"	2 3/8"	5"

Larger Sizes Available on Special Order.



SNAP-ON EXTRA HEAVY DUTY LOXOCKET HANDLES (1" Square Drive)

L-73 Ratchet and Detachable Handle. Rugged strength, tremendous leverage, and high speed ratchet action combine to chase away the nightmare of costly delays and shutdowns.

This tool is recommended without hesitation for the toughest kind of work. The detachable hammer forged head and all working parts are accurately machined from special alloy steels, heat treated to give the utmost strength and durability. Hardened bearings in the head provide resistance to wear. Ratchet action requires only a 20° handle movement. Overall length 35".

L-73-A Ratchet Head only, 7 $\frac{1}{16}$ " long, 1 $\frac{7}{16}$ " thick

L-53-H Handle only, 30" long, 1 $\frac{1}{8}$ " dia.

L-53 Extra Heavy Duty Sliding Bar. Thirty full inches of tremendous leverage when this tool is used as an Offset Handle. The head can be used in any position on the bar or as a tee wrench in combination with extension bars. Handle is same as used on L-73 Ratchet.

L-53-A Sliding Bar Head only, 3 $\frac{1}{16}$ " deep.

Handle and Socket Adaptors. These two adaptors enable you to interchange your Extra Heavy Duty units with Heavy Duty ($\frac{3}{4}$ " square drive) units.

LA-72 Adaptor. Unites $\frac{3}{4}$ " square drive handles with 1" square drive sockets.

LA-124 Adaptor. Unites 1" square drive handles with $\frac{3}{4}$ " square drive sockets.

Extra Heavy Duty Extension Bars. These extensions give you the valuable adaptability of the Ratchet or Sliding Bar to nuts or bolts down in deep holes or crevices where other tools will not reach, or where obstructions interfere. They are tough, one-piece units, heat treated and tempered to give them the great strength they need to stand all the strain the Extra Heavy Duty Ratchet or Sliding Bar can build up. Two Extension Bars are available—shank diameters are 1 $\frac{1}{4}$ ". Buy both bars and increase the utility of your Extra Heavy Duty Tools many times.

L-63 Extension Bar 8" long.

L-123 Extension Bar 16" long.



EXTRA HEAVY DUTY STANDARD SET—21 Tools

521-EHD-B Extra Heavy Duty Standard Set. Includes all 17 Hexagon Loxockets listed on opposite page and provides a wrench range of 1 $\frac{1}{16}$ " up to and including 3 $\frac{1}{8}$ ". Also L-73-A Ratchet Head, Sliding Bar L-53 and two Extension Bars L-63 and L-123. All neatly packed in a sturdy metal box KR-238—made of heavy gauge steel—closely spot welded for durability and strength. Lid is fitted with four butt hinges and a strong padlock hasp. Has heavy carrying handles on each end. Finished in baked-on red enamel. Size 31 $\frac{1}{2}$ " long, 11 $\frac{1}{4}$ " wide and 5 $\frac{1}{4}$ " deep.

521-EHD Set. Same set as above but tools only.

E. H. D. Basic Set—15 Tools

515-EHD-B Extra Heavy Duty Basic Set. Included are 11 powerful Hexagon Loxockets LDH-463, 483, 523, 543, 563, 583, 603, 643, 683, 703, and 723; the L-73-A Ratchet Head, a 30" Sliding Bar L-53 and two extension bars L-63 and L-123. This set, with wrench sizes of 1 $\frac{1}{16}$ " to 2 $\frac{1}{4}$ " will handle a wide range of big nut turning jobs. Set also includes KR-238 Metal Box described at left.

515-EHD Set. Above set. Tools only.

HEAVY DUTY LOXOCKETS FOR TOUGH



HEAVY DUTY LOXOCKETS*—3/4" Square Drive

*Trade Mark (Lic. Reissue Pat. 19,287)

STANDARD DOUBLE HEX SERIES

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Drive End	
3/4"	LDH-242	1 1/16"	1 1/8"	2"
7/8"	LDH-282	1 3/16"	1 1/16"	2"
1 1/16"	LDH-302	1 3/8"	1 1/8"	2"
1 1/8"	LDH-312	1 7/8"	1 1/8"	2"
1 1/4"	LDH-322	1 7/8"	1 1/2"	2 1/8"
1 1/2"	LDH-342	1 7/8"	1 1/2"	2 1/8"
1 3/4"	LDH-362	1 7/8"	1 1/2"	2 1/8"
1 7/8"	LDH-382	1 7/8"	1 1/2"	2 1/8"
2"	LDH-402	1 7/8"	1 1/2"	2 1/8"
2 1/16"	LDH-422-A	1 7/8"	1 1/2"	2 1/8"
2 1/8"	LDH-442	1 7/8"	1 1/2"	2 1/8"
2 1/4"	LDH-462	1 7/8"	1 1/2"	2 1/8"
2 1/2"	LDH-482	1 7/8"	1 1/2"	2 1/8"
2 3/8"	LDH-502	1 7/8"	1 1/2"	2 1/8"
2 1/2"	LDH-522	1 7/8"	1 1/2"	2 1/8"
2 3/4"	LDH-542	1 7/8"	1 1/2"	2 1/8"
2 7/8"	LDH-562	1 7/8"	1 1/2"	2 1/8"
3"	LDH-582	1 7/8"	1 1/2"	2 1/8"
3 1/8"	LDH-602	1 7/8"	1 1/2"	2 1/8"
3 1/4"	LDH-642	1 7/8"	1 1/2"	2 1/8"
3 1/2"	LDH-682	1 7/8"	1 1/2"	2 1/8"
3 3/4"	LDH-702	1 7/8"	1 1/2"	2 1/8"
3 7/8"	LDH-722	1 7/8"	1 1/2"	2 1/8"

EXTRA DEEP HEXAGON SERIES

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Drive End	
3/4"	LS-282	1 3/16"	1 3/8"	3 1/2"
7/8"	LS-302	1 3/8"	1 3/8"	3 1/2"
1 1/16"	LS-322	1 3/8"	1 3/8"	3 1/2"
1 1/8"	LS-342	1 3/8"	1 3/8"	3 1/2"
1 1/4"	LS-362	1 3/8"	1 3/8"	3 1/2"
1 1/2"	LS-402	1 3/8"	1 3/8"	3 1/2"
1 3/4"	LS-422-A	1 3/8"	1 3/8"	3 1/2"
1 7/8"	LS-442	1 3/8"	1 3/8"	3 1/2"
2"	LS-462	1 3/8"	1 3/8"	3 1/2"
2 1/16"	LS-482	1 3/8"	1 3/8"	3 1/2"
2 1/8"	LS-522	1 3/8"	1 3/8"	3 1/2"

HEAVY DUTY RATCHET ADAPTOR

(Patent No. 2,020,883)

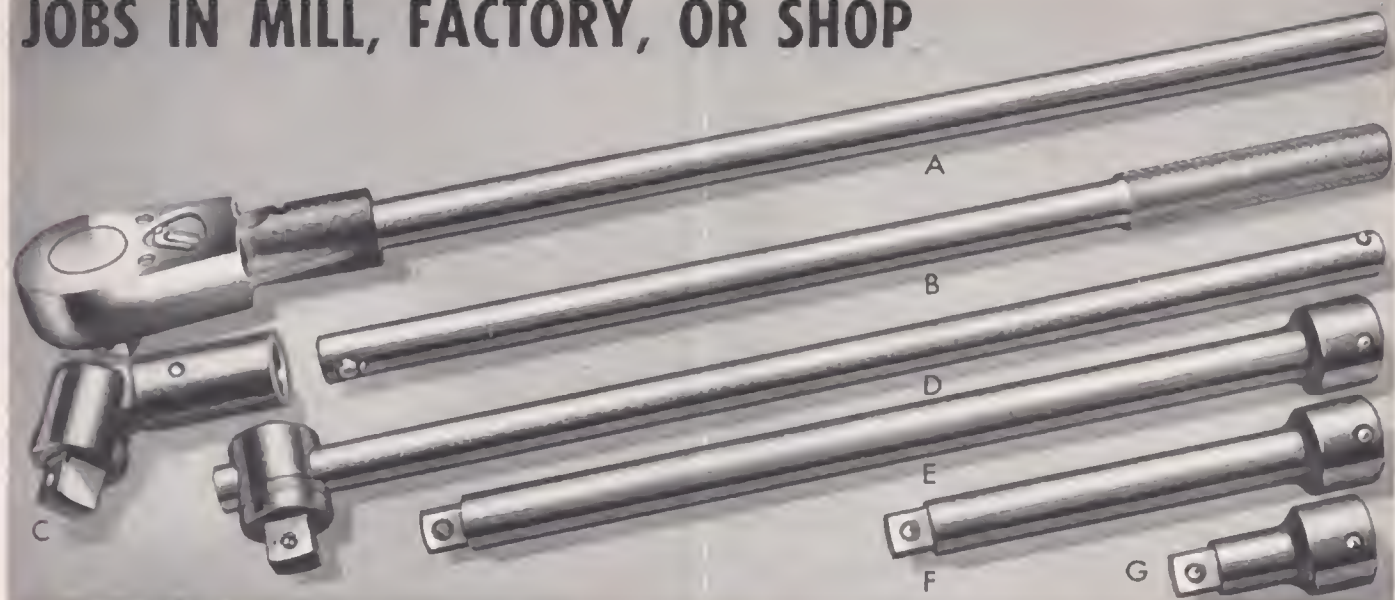
When a tough nut ties up your shop, minutes lost add up to dollars lost . . . you lose money every minute any machine is laid up for repairs or servicing. The trick is to get them OUT . . . quick. It's no trick at all when your mechanics are equipped with Snap-on Heavy Duty Loxocket Wrenches . . . that's why so many Managers and Superintendents make sure that these tools are standard equipment in their shops.

Not only do they speed up your work but on top of that the special locking device on all units puts "Safety" into the hands of every operator and mechanic. This locking device is essentially the same as the standard friction grip except that the ball is replaced with a pin. This pin snaps into the locking hole in the socket and will not release by pulling like the friction grip. A small button is incorporated in each socket which, when depressed, releases it from the socket. Interchanging of units is fast . . . simple . . . easy, yet you have the advantage of a one piece tool.

Snap-on Loxockets are machined from exceptionally high quality bar steel and held to very close tolerances. Hot broaching gives smooth, accurate openings and with no rough edges or chips at the bottom to collect dirt etc. Careful heat-treating of the Loxocket assures the utmost in strength with the exceptional toughness necessary for all heavy duty operations.

L-672 Ratchet Adaptor. Here is a new addition to Snap-on's Heavy Duty series that will prove a real time-saver. It converts any combination of handle, extension and socket into a 44 tooth, reverse action ratcheting tool and will make your present set twice as useful. Outside diameter 2 1/2", overall length 3 1/16".

JOBS IN MILL, FACTORY, OR SHOP



HEAVY DUTY LOXOCKET HANDLES — $\frac{3}{4}$ " Square Drive

RATCHET AND DETACHABLE HANDLE

A L-72-SH Heavy Duty Ratchet. Complete with the L-72-H handle. Powerful leverage to break loose the tightest of those larger nuts and bolts. Efficient, smooth working, reversible ratcheting action that speeds your work. Rugged construction to stand the most strenuous heavy duty work in general auto, bus, and truck repair shops, etc.

Built into this tool is every conceivable improvement of design and construction, making it the most outstanding $\frac{3}{4}$ " drive heavy duty ratchet ever offered the trade. The detachable handle, locks on to the ratchet head and will not come off until the locking button is released. Overall length, 24".

L-72-S Ratchet Head only. Length 6", head thickness $1\frac{1}{4}$ ". Can be used on either L-72-H standard handle or L-72-RJ knurled grip handle.

BAR HANDLES

L-72-H Handle. This handle is a solid high carbon alloy steel bar and is used with the Heavy Duty Ratchet, Heavy Duty Sliding Bar and Heavy Duty Nut Spinner. One end is fitted with a locking button for securely attaching to the ratchet and nut spinner heads. It cannot be detached accidentally. Overall length 20", diameter $1\frac{3}{16}$ ".

B L-72-RJ Handle. This solid steel handle is knurled on one end to afford a firmer, more convenient grip for those heavy turning jobs. Fits Ratchet, Nut Spinner and Sliding Bar heads illustrated. Locking button at one end locks the handle to the ratchet and nut-spinner heads to prevent slipping off and causing damage to parts or injuries to the operator. Shank diameter is $1\frac{3}{16}$ ", overall length 20".

NUT SPINNER

C L-112-DH Heavy Duty Nut Spinner. Complete with the L-72-H handle. A heavy duty unit that offers the advantages of a nut spinner handle, an offset handle and an angle head handle all in one. The detachable handle can also be used on the Ratchet Head and Sliding Head, giving a maximum tool efficiency at a minimum cost. The entire unit is built to take those tough jobs which require extra powerful leverage to break loose those large rusted-on nuts and bolts, or tighten them down. Overall length $21\frac{1}{2}$ ".

L-112-D Nut Spinner Head only. Head diameter $1\frac{9}{16}$ ", depth $2\frac{3}{16}$ ". Can be used on either of the handles listed at left.

SLIDING BAR

D L-52-BH Heavy Duty Sliding Bar. Complete with the L-72-H handle. Three tools in one—a combination sliding bar handle and offset handle, which the attachment of an extension bar converts to a tee handle. The head can be purchased separately if you already have the bar handle. A spring and ball device holds the head at any point on the handle. Overall length, 20".

L-52-B Sliding Head only. Depth $2\frac{3}{16}$ ". Can be used on either of the handles listed at left.

EXTENSION BARS

Heavy Duty Extension Bars. Give you the extra reach you need on so many jobs and are probably used on more operations than any other wrench attachment. Used in conjunction with the sliding bar, they convert it for use as a "Tee" handle. Made in three lengths for your working convenience. Shank diameter is $1\frac{3}{16}$ ".

F L-122 Extension Bar 16 inch shank length.

F L-62 Extension Bar 8 inch shank length.

E L-32 Extension Bar 3 inch shank length.



UNIVERSAL JOINT

Patent No. 2,196,297

L-82 Heavy Duty Universal Joint. Whenever you must reach in at an angle after a nut, you need the working convenience of a universal joint. This tool worms in and gets those around-the-corner and under-obstruction nuts and bolts that would otherwise have you sweating and tearing your hair. It works freely at abrupt angles.

Forged from finest alloy steel—heat treated and tempered for maximum service under toughest working conditions. Chrome Finish. Outside diameter is $1\frac{3}{8}$ ", overall length $4\frac{1}{8}$ ".



HANDLE AND SOCKET ADAPTORS

These adaptors allow you to interchange your Heavy Duty ($\frac{3}{4}$ " square drive) wrenches with Master ($\frac{1}{2}$ " square drive), old style Heavy Duty ($\frac{3}{8}$ " square drive), and Extra Heavy Duty (1" square drive) units.

LA-12 Adaptor. Converts $\frac{1}{2}$ " drive to $\frac{3}{4}$ ".

LA-62 Adaptor. Converts $\frac{3}{8}$ " drive to $\frac{1}{2}$ ".

LA-52 Adaptor. Converts $\frac{3}{8}$ " drive to $\frac{3}{4}$ ".

LA-32 Adaptor. Converts $\frac{3}{8}$ " drive to $\frac{1}{2}$ ".

LA-72 Adaptor. Converts $\frac{3}{4}$ " drive to 1".

LA-124 Adaptor. Converts 1" drive to $\frac{3}{4}$ ".



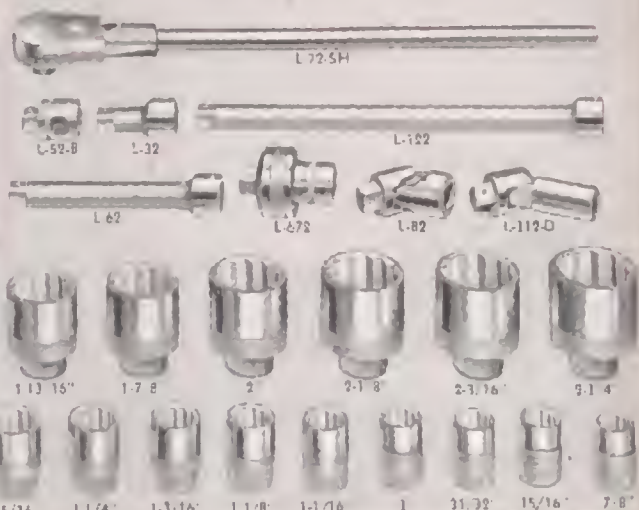
DRAG LINK ADJUSTER

LD-138 Drag Link Adjuster. This heavy duty unit has been made especially for drag link adjusting work on trucks and buses. The short, tapered blade will take the punishment necessary for work of this type. Loxocket release button permits fast, easy removal. Overall length of the unit is $2\frac{3}{4}$ ", outside diameter $1\frac{3}{8}$ ", tip size $1\frac{3}{16}$ "x $1\frac{3}{16}$ ".

HEAVY DUTY LOXOCKET SETS FOR 3/4" DRIVE



KR-226 BOX



Contents of 430-HD-B Heavy Duty General Set

Stock No.	Description	Page	Stock No.	Description	Page
L-72-SH	Ratchet - Complete	19	LDH-422-A	1 1/4" Double Hex Socket	18
L-52-B	Sliding Tee Head	19	LDH-442	1 3/8" Double Hex Socket	18
L-112-D	Nut Spinner Head	19	LDH-462	1 1/2" Double Hex Socket	18
L-672	Universal Joint	19	LDH-482	1 3/4" Double Hex Socket	18
L-82	3" Extension	19	LDH-502	1 7/8" Double Hex Socket	18
L-122	16" Extension	19	LDH-522	2" Double Hex Socket	18
LDH-282	3/4" Double Hex Socket	18	LDH-542	2 1/8" Double Hex Socket	18
LDH-302	7/8" Double Hex Socket	18	LDH-562	2 1/4" Double Hex Socket	18
LDH-312	1" Double Hex Socket	18	LDH-602	2 3/8" Double Hex Socket	18
LDH-322	1 1/8" Double Hex Socket	18	LDH-642	2 7/8" Double Hex Socket	18
LDH-342	1 1/4" Double Hex Socket	18	LDH-682	3" Double Hex Socket	18
LDH-362	1 1/2" Double Hex Socket	18	LDH-702	3 1/8" Double Hex Socket	18
LDH-382	1 3/4" Double Hex Socket	18	LDH-722	3 1/4" Double Hex Socket	18
LDH-402	1 7/8" Double Hex Socket	18	KR-226	Metal Box	Always

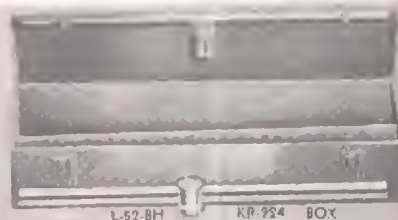
HEAVY DUTY GENERAL SET—30 Tools

430-HD-B Heavy Duty General Set. The right combination of tools means hours of time saved when machines and equipment are down for repair, and the proper selection of tools for production or maintenance work is a profitable investment. Equip your men to do faster, more efficient work with this complete set of heavy duty wrenches. This selection gives a Loxocket range of 7/8" to 2 3/4" with hundreds of handle and socket combinations. Units are described on pages 18 and 19. Detachable ratchet handle fits sliding head and nut spinner head. Sturdy KR-226 metal box measures 25 1/2" x 8 3/4" x 3 1/4".

430-HD General Set. Above set but tools only.

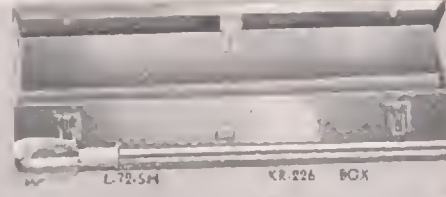


KR-224 BOX



L-52-BH

KR-224 BOX



L-72-SH

KR-226 BOX



H. D. BASIC SET—10 Tools

410-HD-B Heavy Duty Basic Set. Selected to provide maximum utility at minimum cost for the mechanic building up his tool equipment or who has only occasional need for these powerful wrenches. Socket range of 1 1/4" to 1 3/4" handles most of heavier garage work. Set includes KR-224 red enamel metal box, size 22 1/2" x 8 3/4" x 3 1/4".

Handles: L-52-BH Sliding Bar and L-62 8" Extension.

Sockets: LDH-342, LDH-362, LDH-402, LDH-442, LDH-462, LDH-482, LDH-522, and LDH-562.

410-HD Set. Above set tools only.

H. D. STANDARD SET—14 Tools

414-HD-B Heavy Duty Standard Set. Men working in fleet shops are enthusiastic about the power and safe operation provided by this set of Heavy Duty Units. The 10 Loxockets provide a size range of 1 1/8" to 1 3/4", the sliding bar handle also fits the ratchet head. Red enameled KR-224 metal box measures 22 1/2" x 8 3/4" x 3 1/4".

Handles: L-72-SH Ratchet Head, L-52-BH Sliding Bar, L-62 8" Extension and L-122 16" Extension.

Sockets: LDH-342, LDH-362, LDH-402, LDH-442, LDH-462, LDH-482, LDH-522, LDH-562, LDH-582, LDH-602.

414-HD Set. Above set tools only.

HEAVY DUTY UTILITY SET—24 Tools

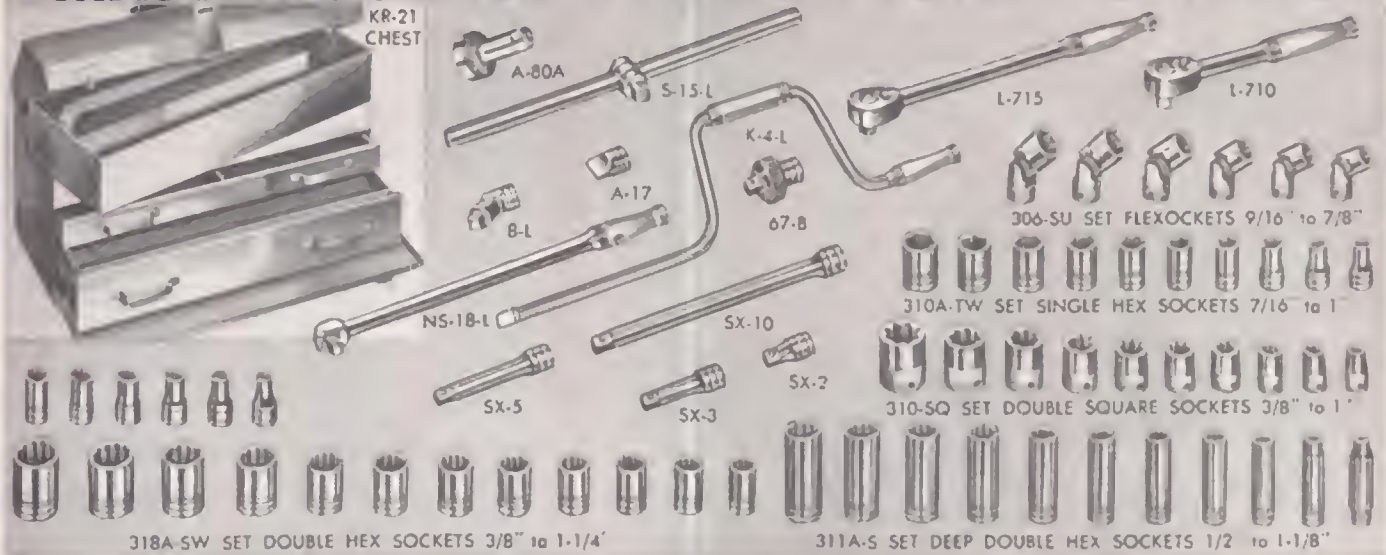
424-HD-B Heavy Duty Utility Set. A practical selection of wrenches for factory and building maintenance, medium diesel and stationary engine assembly and service, fleet shops, etc. Detachable handle fits ratchet, nut-spinner and sliding head. 18 Loxockets provide sizes 1 1/4" to 2". Red enameled metal box KR-226 measures 25 1/2" x 8 3/4" x 3 1/4".

Handles: L-72-SH Ratchet, L-52-B Sliding Bar Head, L-112-D Nut Spinner Head, Ext. Bars. L-32 3" long, L-62 8" long, L-122 16" long.

Sockets: LDH-302, LDH-312, LDH-322, LDH-342, LDH-362, LDH-382, LDH-402, LDH-422-A, LDH-442, LDH-462, LDH-482, LDH-502, LDH-522, LDH-542, LDH-562, LDH-582, LDH-602, and LDH-642.

424-HD Set. Above set but tools only.

MASTER SOCKET WRENCH SETS—1/2" DRIVE



368A-M-B MASTER GENERAL SET IN KR-21 MECHANIKIT—68 TOOLS

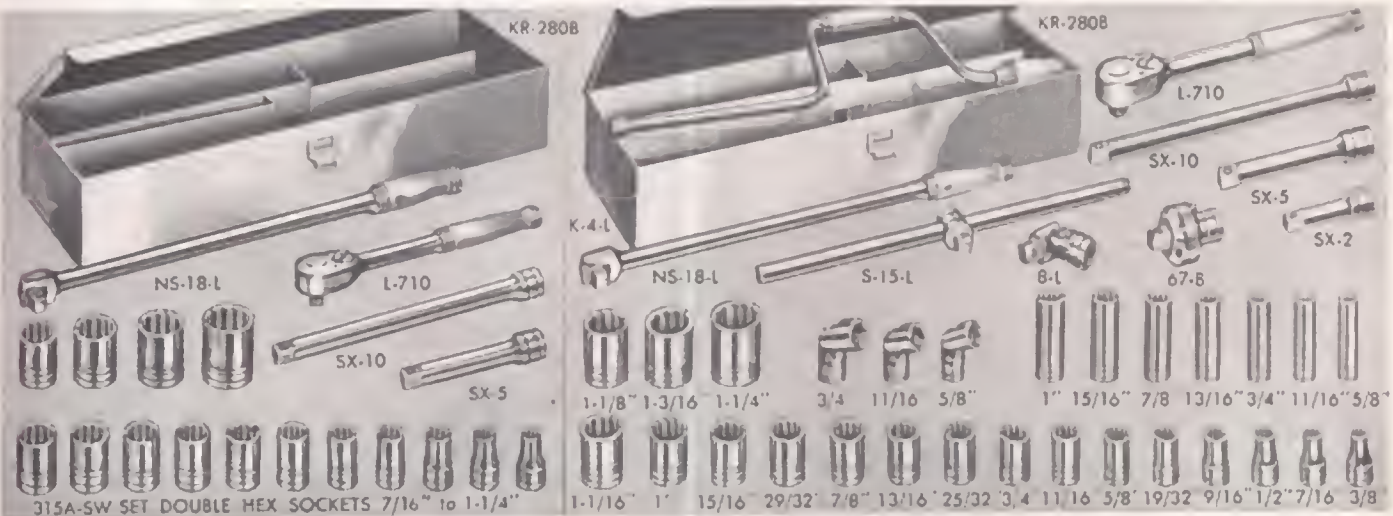
368A-M-B Master General Set. Here is our most complete set of Master (1/2" square drive) wrenches. Assembled for the mechanic who wants a full range of socket sizes and types together with a wide selection of handle equipment. This versatile assortment of "matched units" contributes speed and convenience to the overall proficiency of top notch mechanics in every type of service and maintenance work. Treat yourself to greater working ease with this outstanding set of Snap-on quality wrenches.

The KR-21 Mechanikit shown above is the ideal container for these tools . . . its tote-tray and drawers are partitioned for orderly tool arrangement and safekeeping.

Contents of 368A-M-B Set

Stock No.	DESCRIPTION	See Page	Stock No.	DESCRIPTION	See Page
NS-18-L	Nut Spinner 18"	22	SX-10	Extension Bar 10"	22
S-15-L	Sliding Bar 15"	23	A-17	Drag Link Adjuster	23
K-4-L	Speeder 18 1/4"	23	A-80A	Stud Remover	23
L-710	Ratchet Wrench 10"	22	318A-SW	Double Hex Sockets Set	21
L-715	Ratchet Wrench 15"	22	311A-S	Deep Double Hex Socket Set	24
67-B	Ratchet Adapter	22	310A-TW	Single Hex Socket Set	25
8-L	Universal Joint	23	310-SQ	Square Socket Set	25
SX-2	Extension Bar 2"	22	306-SU	Flexsocket Set	25
SX-3	Extension Bar 3 3/4"	22	KR-21	Mechanikit	7
SX-5	Extension Bar 5"	22			

368A-M Master General Set. Above set without the Mechanikit.



319A-M-B MASTER BASIC SET—19 Tools

319A-M-B Master Basic Set. Pictured above is a basic selection of 1/2" square drive Snap-on "Matched Unit" wrenches. It's the ideal starter set for the alert mechanic and gives him the most useful tools possible in a small set. The right tools for the job makes your work easier. Other "matched units" can be added as the need arises. The metal box shown, conveniently holds all the units with room for additional tools. Keeps tools at hand for immediate use.

319A-M Master Basic Set. Tools only.

Stock No.	DESCRIPTION	See Page
NS-18-L	Nut Spinner 18"	22
L-710	Ratchet Wrench	22
SX-5	Ext. Bar 5"	22
SX-10	Ext. Bar 10"	22
315A-SW	Double Hex Socket Set	21
KR-280B	Box, Red Enamel Finish	

337A-M-B MASTER UTILITY SET—37 Tools

337A-M-B Master Utility Set. Set includes 18 double hex sockets in sizes 1/2" to 1 1/4", 7 popular sizes of deep hex sockets for spark plug work and jobs where bolts protrude, and 3 hex flexockets. The nine handles and attachments provide complete versatility of use.

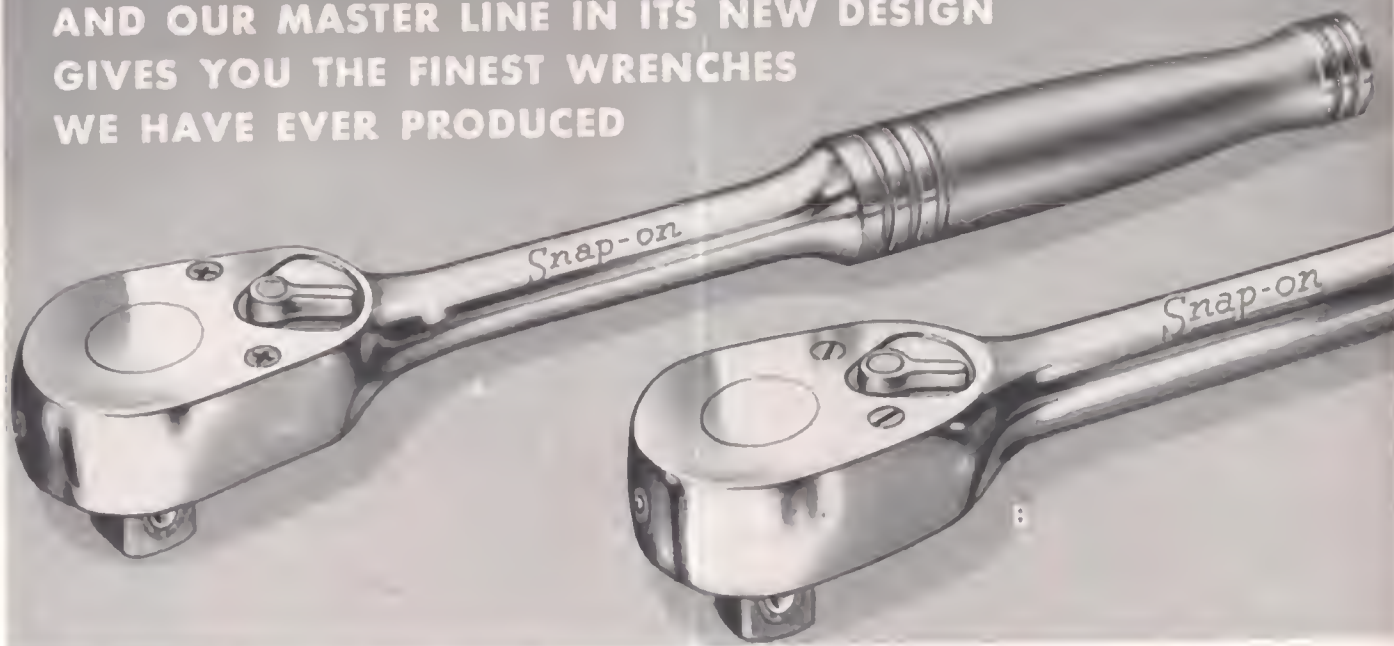
Rid your kit of obsolete, time-wasting, "misfits" and treat yourself to greater working ease with this set of Snap-on "Matched Units." Set includes KR-280B metal box which was specially designed for these tools. Box has carrying handle on the lid and measures 20" x 6 1/2" x 2 1/2" high. Red enamel finish.

337A-M Master Utility Set. Same set as above but tools only.

Stock No.	DESCRIPTION	See Page
NS-18-L	Nut Spinner—18" long	22
S-15-L	Sliding Bar—15" long	23
K-4-L	Speeder—18 1/4" long	23
L-710	Ratchet Wrench	22
67-B	Ratchet Adapter Wrench	22
SX-10	Extension Bar—10" long	22
SX-5	Extension Bar—5" long	22
SX-2	Extension Bar—2" long	22
8-L	Universal Joint	23
310A-SW	Double Hexagon Socket Set	21
310A-S	Deep Double Hex. Socket Set	24
SU-20	Flexsocket—1/2" wrench size	25
SU-22	Flexsocket—3/4" wrench size	25
SU-24	Flexsocket—1/2" wrench size	25
KR-280B	Metal Box, Red Enamel Finish	

more mechanics prefer **Snap-on's**

AND OUR MASTER LINE IN ITS NEW DESIGN
GIVES YOU THE FINEST WRENCHES
WE HAVE EVER PRODUCED



New Features That Give You Most Value For Your Money

- Patented Palm-Grip Design Handles give a secure hand grip and better appearance.
- You have a choice of Four Different Snap-on "Master" Ratchet Handles.
- Welch Plugs are used in the friction grip on all handle square drive ends.
- Four way socket grip makes it easier and faster to interchange various units.
- Hot broached chip-curl openings given you smooth strong socket walls.
- High grade alloy steel only is used to produce these Snap-on wrenches.
- Controlled heat treating combines surface hardness with skin to core toughness in every part of every tool.
- Snap-on's guarantee protects you . . . any wrench proving defective in material or workmanship will be replaced.

MASTER RATCHETS (1/2" Square Drive)

Pat. Number D-132,891

Snap-on ratchet wrenches are used and preferred by professional mechanics and engineers throughout industry. In every way they are fine examples of the precise engineering, machining, heat treating and finishing that characterizes all Snap-on products. The reverse ratcheting mechanism has proved its unbeatable construction through many years of rugged use. An oiler hole or plug is provided in the head and frequent cleaning and oiling will keep this action working freely. These tools are made of high grade alloy steel, heat treated to give years of service, chrome plated for lasting appearance.

A L-710 Master "Supreme" Ratchet. This tool has a 32 tooth ratchet action for efficient operation where handle swing is limited. Overall length is 9 3/4".

B L-715 Master "Supreme" Ratchet. Same 32 tooth action as the L-710 but having an overall length of 15". Many mechanics prefer this longer ratchet for its extra reach and leverage.

C 71-M Master Ratchet. An old time favorite with many tool users. Has 20 tooth ratchet action. Pawls, gear drive and plate have gunmetal finish and the handle and head unit is nickel plated. Overall Length is 9 3/4".

D 67-B Ratchet Adaptor. This ratcheting adaptor converts any combination of handle, extension and socket into a ratcheting tool. Can be used with Snap-on Torquometers (page 34) for convenience on many jobs. 1/2" Square Drive, 2 1/2" overall length, 1 1/8" O.D.



MASTER NUT SPINNER* HANDLES AND EXTENSION BARS (1/2" Square Drive)

Nut Spinners. The hinged socket receiving end allows you to work the tool in any position to clear obstructions and an inner spring holds the head at desired angle for easy placement on the job. Long handles give plenty of leverage for tightening nuts or breaking them loose. Straighten out the hinge and you have a nut spinner. Handle grip is drilled to take a cross bar—bar not included.

*(Pat. Nos. 2,196,297; 2,005,202 and D-132,891).

NS-18-L Nut Spinner. 18" long, 1 1/2" square drive.
NS-15-L Nut Spinner. 15" long, 1 1/2" square drive.

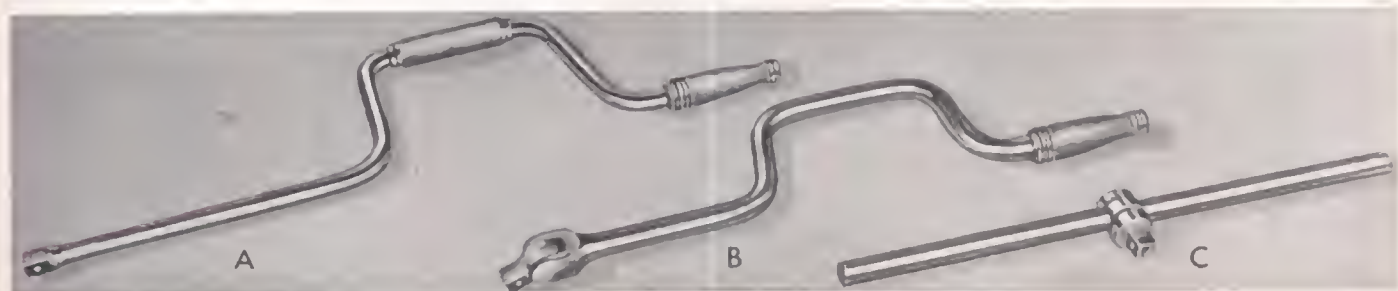
Extension Bars. Made in eight lengths to give you greatest flexibility of use for your Master tool set. They give you that extra amount of reach that often means the difference between a tough job and an easy job. Full chrome plated and polished.

SX-2 Ext. Bar..... 2" long	SX-20 Ext. Bar..... 20" long
SX-3 Ext. Bar..... 3 1/4" long	SX-24 Ext. Bar..... 24" long
SX-5 Ext. Bar..... 5" long	SX-30 Ext. Bar..... 30" long
SX-10 Ext. Bar..... 10" long	SX-36 Ext. Bar..... 36" long

than any other wrenches —



**"MASTER" SERIES
UNITS ALL HAVE
1/2" SQUARE DRIVE**



MASTER SPEEDERS AND SLIDING BARS (1/2" Square Drive)

A K-4-L Speeder Handle. There's nothing faster to use where you have many nuts that must be serviced. Spins them on or off in a hurry. Both handle grips swivel for easy operation. Shank length is 8", overall length 18 3/4", radius of sweep 4 1/8". Chrome plated finish.

B NS-4-L Nut Spinner Speeder. A Speeder, Spinner and Offset Handle, in one. Straighten the hinged head to spin nut down and without taking it off the job, bend into offset position to tighten the nut. Shank length is 6 3/8", overall length 16 1/4". Sweep radius is 2 3/4".

C Sliding Tee Handles. A friction ball in the head snaps into the center groove to make a practical Tee Handle. Head slides to end of bar to form an offset handle. Head 1 3/4" deep.

S-10-L Sliding Bar, 10" long, 3/4" diam.
S-15-L Sliding Bar, 15" long, 3/4" diam.



ATTACHMENTS FOR MASTER HANDLES (1/2" Square Drive)

A No. 8-L Universal Joint. (Pat. No. 2,196,297). Now fitted with inner spring device which will hold the joint at any angle for easy application to the job, but which does not interfere with the swivel action of the tool in use. 1/2" square drive. 2 11/16" long. Accurately machined—extremely compact—short coupled—reaches into those tight places.

B Droog Link Adjusters. Made for slotted nuts on steering gear assemblies, drag links and tie rods. 1/2" Square Drive, 1 11/16" long. The A-26 is for Model "A" Ford and Houdaille Shock Absorbers.
A-15 Adjuster, 1 3/16" x .150" driving blade tip.
A-17 Adjuster, 1 5/16" x .150" driving blade tip.
A-26 Adjuster, 3/4" x .150" driving blade tip.

C Adaptors. Interchange your Ferret and Heavy Duty units with Master handles and sockets . . . adaptors convert the square drive of the handles as indicated.

HD-1	1/2" handle to 5/8".
A-2	3/8" handle to 1/2".
A-4	1/2" handle to 3/8".
LA-12	1/2" handle to 3/4".
LA-62	3/4" handle to 1/2".

D Weatherhead Sockets. Designed to fit over and turn those weatherhead copper fittings without damaging them in any way. Enables you to do a fast efficient job.

WH-14 Socket. Fits 7/16" tube fittings.
WH-16 Socket. Fits 1/2" tube fittings.
WH-20-H Socket. Fits 5/8" tube fittings.

Snap-on MASTER LINE SOCKETS

Precision Machined for accurate



A Deep Hexagon Sockets. Ideal for spark plugs, spring "U" bolts and for nuts set down deeply over bolts . . . extra depth gives you the additional clearance necessary to service them properly. All sizes listed below are double hexagon broached.

Wrench Size	Stock No.	O. D. Socket End	O. D. Drive End	Length
1 1/2"	S-161	23/32"	57/64"	3 1/4"
1 3/8"	S-181	51/64"	57/64"	3 1/4"
1 1/4"	S-201	27/8"	57/64"	3 1/4"
1 1/8"	S-221	51/32"	29/32"	3 1/4"
1 1/16"	S-241	13/16"	31/32"	3 1/4"
1 1/32"	S-261	11/16"	11/16"	3 1/2"
1 1/64"	S-281	13/16"	13/16"	3 1/2"
1 1/128"	S-301	17/32"	13/16"	3 1/2"
1 1/256"	S-321	11/16"	13/16"	3 1/2"
1 1/512"	S-341	17/16"	13/8"	3 1/2"
1 1/1024"	S-361	11/2"	13/8"	3 1/2"

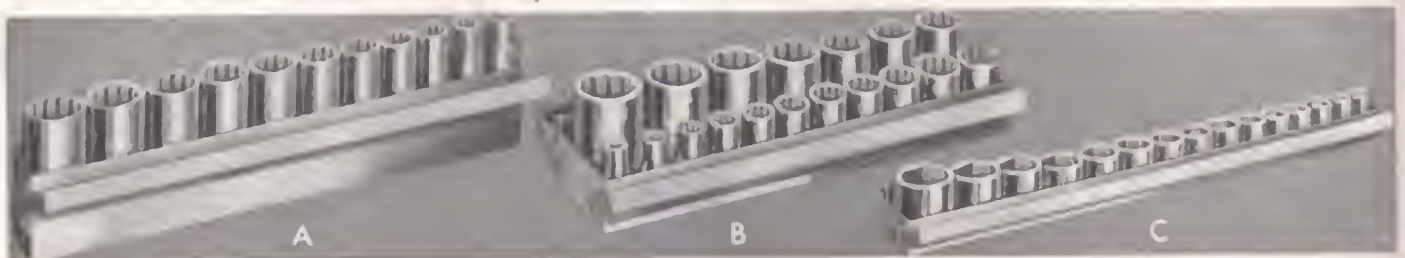
B Double Hexagon Sockets. Double broached, extra thin, straight walled . . . the ideal socket for all-around use.

Wrench Size	Stock No.	O. D. Socket End	O. D. Drive End	Length
3/8"	SW-121	9/16"	7/8"	1 1/2"
1/2"	SW-141	11/16"	7/8"	1 1/2"
5/8"	SW-161	23/32"	7/8"	1 1/2"
9/16"	SW-181	51/64"	7/8"	1 1/2"
19/32"	SW-191	27/32"	7/8"	1 1/2"
5/8"	SW-201	27/32"	7/8"	1 1/2"
11/16"	SW-221	31/32"	29/32"	1 1/2"
3/4"	SW-241	13/16"	31/32"	1 1/2"
25/32"	SW-251	11/16"	1"	1 1/2"
13/16"	SW-261	11/16"	1 1/16"	1 1/2"
7/8"	SW-281	13/16"	1 1/16"	1 1/2"
29/32"	SW-291	11/16"	13/16"	1 1/2"
15/16"	SW-301	13/16"	13/16"	1 1/2"
1"	SW-321	11/16"	1 1/16"	1 1/2"
1 1/16"	SW-341	17/16"	13/8"	1 1/2"
1 1/32"	SW-361	11/2"	17/16"	1 1/2"
1 1/64"	SW-381	15/8"	10/16"	1 1/2"
1 1/128"	SW-401	11/16"	15/8"	1 1/2"

*SW-290 is extra heavy for shackle work.

C Single Hexagon Sockets. Single hex gives greater wall contact needed to turn those tightly rusted on or worn nuts and bolts.

Wrench Size	Stock No.	O. D. Socket End	O. D. Drive End	Length
3/8"	TW-121	9/16"	7/8"	1 1/2"
1/2"	TW-141	11/16"	7/8"	1 1/2"
5/8"	TW-161	23/32"	7/8"	1 1/2"
9/16"	TW-181	51/64"	7/8"	1 1/2"
19/32"	TW-191	27/32"	7/8"	1 1/2"
5/8"	TW-201	27/32"	7/8"	1 1/2"
11/16"	TW-221	31/32"	29/32"	1 1/2"
3/4"	TW-241	13/16"	31/32"	1 1/2"
25/32"	TW-251	11/16"	1"	1 1/2"
13/16"	TW-261	11/16"	1 1/16"	1 1/2"
7/8"	TW-281	13/16"	1 1/16"	1 1/2"
29/32"	TW-301	13/16"	13/16"	1 1/2"
15/16"	TW-321	11/16"	13/16"	1 1/2"
1"	TW-341	17/16"	13/8"	1 1/2"
1 1/16"	TW-361	11/2"	17/16"	1 1/2"
1 1/32"	TW-381	15/8"	10/16"	1 1/2"
1 1/64"	TW-401	11/16"	15/8"	1 1/2"



A 311A-S-T Deep Hex Socket Set. 11 piece set. All sizes of the deep hex sockets listed above, in KTR-240 metal tray.

311A-S Set. Above set, but tools only. KTR-240 Metal Tray only.

307A-S Deep Hex Socket Set. 7 piece set. S-201, S-221, S-241, S-261, S-281, S-301 and S-321. No tray.

B 318A-SW-T Double Hex Socket Set. 18 piece set. Contains all sizes SW-121 to SW-401 listed above. Complete with KTR-234 double row metal tray as illustrated.

318A-SW Set. Above set, but tools only. KTR-234 Metal Tray only.

315A-SW-T Double Hex Socket Set. 15 piece set. Not shown but contains all sizes except SW-121, SW-291 and SW-381, in KTR-215 single row metal tray.

315A-SW Set. Above set, but tools only.

KTR-215 Metal Tray only.

312A-SW-T Double Hex Socket Set. 12 piece set. Not shown but contains SW-141, SW-161, SW-181, SW-191, SW-201, SW-221, SW-241, SW-251, SW-261, SW-281, SW-301 and SW-321, in KTR-235 metal tray.

312A-SW Set. Above set, but tools only.

KTR-235 Metal Tray only.

310A-SW-T Double Hex Socket Set. 10 piece set. Not shown, but contains SW-141, SW-161, SW-181, SW-191, SW-201, SW-221, SW-241, SW-251, SW-261, and SW-281, in KTR-236 metal tray.

310A-SW Set. Above set, but tools only.

KTR-236 Metal Tray only.

C 315A-TW-T Single Hex Socket Set. 15 piece set. TW-141, TW-161, TW-181, TW-191, TW-201, TW-221, TW-241, TW-251, TW-261, TW-281, TW-301, TW-321, TW-341, TW-361 and TW-401. Complete in KTR-215 single row metal tray as illustrated.

315A-TW Set. Above set, but tools only.

KTR-215 Metal Tray only.

with 1/2" SQUARE DRIVE
non-slip fit!

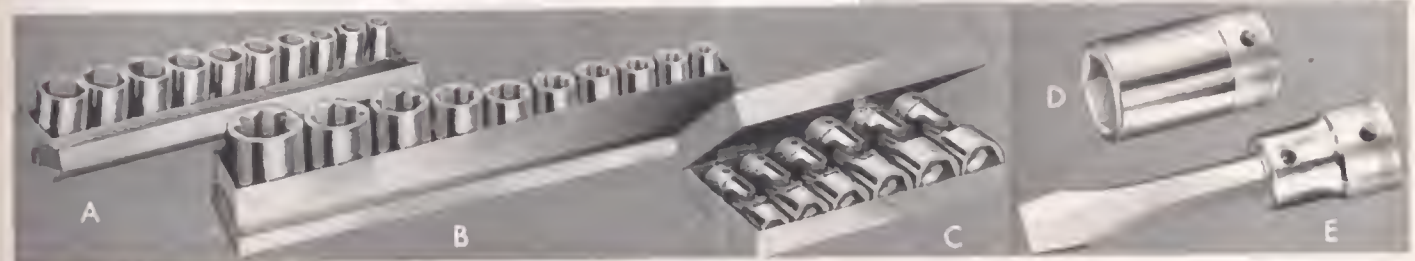


A Double Square Sockets. All have accurately broached, double square openings to allow maximum working convenience where handle movement is limited. Machined from steels famous for their toughness and durability. Get the complete set listed below and have the correct size available when you run into a job requiring the use of a square socket.

Wrench Size	Stock No.	O. D. Socket End	O. D. Drive End	Length
1/2"	412	1 1/4"	1 1/4"	13 1/2"
3/4"	414	1 3/8"	1 3/8"	13 1/2"
7/8"	416	1 1/2"	1 1/2"	13 1/2"
1"	418	1 5/8"	1 5/8"	13 1/2"
1 1/8"	420	1 3/4"	1 3/4"	13 1/2"
1 1/4"	422	1 7/8"	1 7/8"	13 1/2"
1 1/2"	424	2"	2"	13 1/2"
1 3/4"	426	2 1/8"	2 1/8"	13 1/2"
1 7/8"	428	2 1/4"	2 1/4"	13 1/2"
2"	432	2 1/2"	2 1/2"	13 1/2"

B Hexagon Flexsockets. An extremely compact, short coupled, single broached, hexagon flexsocket that works freely from a wide angle. Reaches the nuts in tight, cramped quarters that would be impossible to get at and turn with regular sockets, or with any other type of wrench equipment. Its short coupling contributes to easy work in close quarters and it breaks over to a full 90° for final tightening where space permits. Increase the adaptability of your Master handles with the complete series listed below.

Wrench Size	Stock No.	O. D. Socket End	O. D. Drive End	Length
1/2"	SU-18	7/8"	7/8"	21 1/2"
3/4"	SU-20	1 1/8"	1 1/8"	21 1/2"
7/8"	SU-22	1 1/4"	1 1/4"	21 1/2"
1"	SU-24	1 1/2"	1 1/2"	21 1/2"
1 1/8"	SU-26	1 3/4"	1 3/4"	21 1/2"
1 1/4"	SU-28	1 7/8"	1 7/8"	21 1/2"



A 310A-TW-T single Hex Socket Set. 10 piece set. Consisting of TW-141, TW-161, TW-181, TW-201, TW-221, TW-241, TW-261, TW-281, TW-301 and TW-321 in KTR-237 metal tray as illustrated. Tools listed on page 24.

310A-TW Set. Above set, but tools only. KTR-237 Metal Tray only.

317-TW-T Single Hex Socket Set. 17 piece set. Containing the complete series of TW-type single hexagon sockets shown and listed on page 24. TW-121 to TW-401 inclusive in KTR-234 double row metal tray.

317-TW Set. Above set, but tools only. KTR-234 Metal Tray only.

B 310-SQ-T Double Square Socket Set. 10 piece set. Contains the entire range of square sockets listed above, in sturdy metal tray KTR-239.

310-SQ Set. Above set, but tools only. KTR-239 Metal Tray only.

C 306-SU-B Hexagon Flexsocket Set. 6 piece set. Contains all flexsockets listed above, in KR-206 sturdy metal box as illustrated.

306-SU Set. Above set, but tools only. KR-206 Metal Box only.

Superior Features Make

Snap-on

SOCKET WRENCHES

YOUR BEST BUY!

Finest Steel. No expense is spared in securing the finest available material. Should metallurgy develop even better steels, Snap-on will put them into use.

Continued Research. In laboratories equipped with modern chemical and physical testing equipment, including machines constructed expressly for Snap-on and built to our exacting specifications, trained metallurgists conduct continuous research to develop the highest possible quality in our products.

Hot Broaching. Examine a Snap-on socket and note the smooth, clean cut wrench corners and walls. This is the result of broaching while the socket is heated and contributes strength as well as accuracy to the tool.

Heat Treatment. Only the most advanced processes are good enough for Snap-on tools and furnaces of several types are used to impart the exact necessary degree of hardness, toughness and strength to every part.

Chamfered Openings. All Snap-on sockets have a chamfered bevel on the wrench opening to aid in guiding the socket onto the nut.

Thin, Straight Walled Sockets. The use of special alloy steels make possible sockets having incredible strength, yet with thin straight walls that set down over nuts placed extremely close to obstructions. The thin walls permit close control of heat treatment and allow the heat to penetrate thoroughly and evenly. You get greater strength and lighter weight... important factors in every day use.

Size Accuracy. Tolerances are very closely held, each Snap-on socket being made a definite number of thousandths larger than the nut it fits. This close tolerance means a snug fit on the nut and prevents rounding it or wearing the socket. Close tolerances of square drive openings and handle drive squares eliminates socket wobble while affording easy interchange of units.

Appearance. Snap-on sockets and handles are chromium plated and polished to a lustrous rust resistant finish. They look like quality tools, they have the "feel" of quality—on the job they prove they are quality. Compare them with all others and you'll want Snap-on socket wrenches.

D TW-241-5 3/4" Semi Deep Single Hex Socket. Made with thicker walls and deeper broach for breaking loose or lightening "acorn" nuts on Auto-car trucks, and the extra thick U-bolts on house trailers and trucks. Fits 1/2" square drive handles.

E ★Screw Driver Attachments. Can be used on any master 1/2" square drive handle.

Size	Complete Tool		Socket Only		Screw Driver Only	
	Stock No.	Length	Stock No.	Length	Stock No.	Set Screw No.
7/8"	★ SW-284	4"	★ SW-284-1		★ SW-284-2	SA-12-3
1"	★ SW-324	4"	★ SW-324-1		★ SW-324-2	SA-12-3
1 1/8"	★ SW-405	4"	★ SW-405-1		★ SW-405-2	SA-12-3

Snap-on FERRET TOOLS $\frac{3}{8}$ " square drive, made



YOU GET ALL THESE SUPERIOR FEATURES IN SNAP-ON'S POPULAR LINE OF FERRET WRENCHES

- New design palm-grips on handles
- Choice of 20 or 30-tooth-action ratchets
- Long slim handles for close-in work
- Wide range of socket types and sizes
- 4-way socket grip for faster hook-ups
- Chip-curved hot broached socket walls
- Large variety of special attachments
- High grade alloy steel for strength
- Controlled hardening for long wear

FERRET RATCHET WRENCHES

Patent No. D-132,891

These two fine ratchets have many hidden qualities to give you years of trouble-free service under all kinds of working conditions. Concealed hardened bearings in the head, the use of special alloy steels and carefully controlled heat treatment together with extra-ordinary care in the machining of all parts, insure a free working ratcheting action at all times . . . with the strength to stand up to the toughest kind of nut-turning.

The pear shaped heads and comfortable "Palm-Grip" handles have a heavy chrome plate finish. Welch plug construction of the locking device means easy replacing of the spring for cleaning or replacement. Head diameters are $1\frac{1}{4}$ ", depth $\frac{9}{16}$ " overall lengths $7\frac{1}{16}$ ".

F-71-B Ferret Ratchet 30 tooth action allows a new bite every 12° of handle movement. New style pawl engages 2 teeth for extra strength.

F-710 Ferret Ratchet 20 tooth action. Only 18° handle movement necessary for operation.

KR-250-BOX

PP-409

F-4-L

F-73-C	FA-6	FA-7	FA-E	FP-22	FP-32	FP-42	F-99	F-30	F-221	F-241
1/4"	11/16"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	FD-10	FD-8	FD-6
FERRET FLEXOCKET SET 208-FU										
7/8"	13/16"	7/4"	11/15"	5/8"	19/32"	9/16"	1/2"	7/16"	3/8"	F-181
FERRET DEEP HEX SOCKET SET 210-SF										
7/8"	13/16"	3/4"	11/16"	5/8"	19/32"	9/16"	17/32"	1/2"	7/16"	3/8"
FERRET DOUBLE HEX SOCKET SET 211-F										
SINGLE HEX SOCKET SET 209-FS										
3/4"	11/16"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	1/4"	5/8"	9/16"
SQUARE SOCKET SET 207-F										
7/16"										
F-121										

FERRET GENERAL SET — 71 TOOLS

271-F-B Ferret General Set. Our most complete Ferret Set, carefully selected to handle a majority of servicing requirements. Set also includes the KR-250 Metal Box purposely designed to hold these units. Tote-tray is partitioned to hold sockets.

Handles: (pages 26 and 27) F-71-B Ratchet; F-67-B Ratchet Adaptor; F-5-L Sliding Bar; F-4-L Speeder; F-10-L Nut Spinner; F-40 Plastic Grip Handle; FX-1, FX-2, FX-6, FX-8, FX-11 Ext. Bars; FX-61 Flexitension; and FU-8-A Universal Joint (page 29).

Sockets: (pages 28-29) 211-F Double Hex Set; 209-FS Single Hex Set; 210-SF Deep Double Hex Set; 207-F Double Square Set; 208-FU Flexocket Set; FD-6, FD-8, FD-10 Weatherhead Sockets; F-23-C Screw Driver; FA-6, FA-7, FA-8 Allen Wrenches; PP-409 Plug Socket; FP-22, FP-32, FP-42 Phillips Drivers; F-29, F-30 Clutch-Type Drivers.

271-F Ferret Set. Above Set but tools only.

SPINNER SET

10 Tools

210-FNS Ferret Nut Spinner Set. The nine most needed sizes of sockets and the most useful single handle. Ideal for students. F-10-L Nut Spinner (page 27), 9 double hex sockets, F-121, F-141, F-161, F-181, F-201, F-221, F-241, F-261, F-281 shown on page 28.

A collection of seven different types of metal fasteners, labeled A through G, including bolts, nuts, washers, and specialized hardware.

F-67-B Ferret Ratchet Adaptor.® Your Ferret tool outfit is never complete until you have added this popular item . . . originally developed by Snap-on it has been hailed by mechanics as the most useful new tool designed in years. It converts any combination of Ferret handle, extension and socket into a reverse action ratcheting tool . . . a time saver where a standard ratchet is inconvenient to use . . . Provides ratcheting speed on many nut turning jobs where you cannot possibly use a standard type ratchet wrench. Here is a precision built tool that will add tremendously to the usefulness of your Ferret wrenches. Exceptionally useful for work with $\frac{3}{4}$ " square drive Torqometers. (See page 34.) Outside diameter is $1\frac{1}{16}$ ", length 2". *Pat. No. 2,020,883

1 F-40 Ferret Plastic Grip Handle. Make your Ferret Set more useful with the addition of this shockproof plastic handle. Ideal for electrical work. 5 1/4" long.

Ⓒ Ferret Speeders. It is impossible to beat a speeder type of wrench handle for fast nut running . . . spins them on or off, fast, with two hand operation. These tools feature Snap-on's new "Palm-Grip" handle which rotates to provide easy operation. Three models offer the right length Shank for your needs. Radius of the sweep is $3\frac{1}{4}$ ".

*Pat. No. D-132,891

F-4-L Speeder. 17 $\frac{3}{8}$ " long. 8 $\frac{1}{2}$ " Shank.
F-4-M Speeder. 24 $\frac{1}{2}$ " long. 15" Shank.
F-4-N Speeder. 36 $\frac{1}{4}$ " long. 27" Shank.

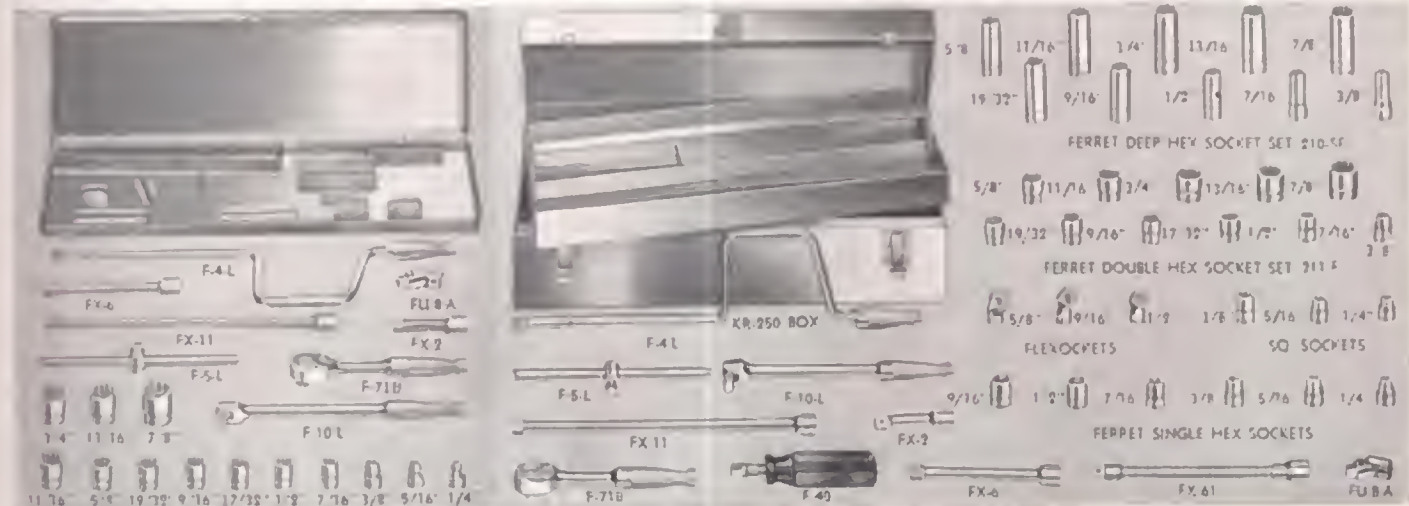
Ⓛ Ferret Extension Bors. Lengthens reach of any Ferret handle. The advantage of having just the right length extension bar often means getting the job done quicker and with less effort.

FX-1	Extension Bar	14"	Long.
FX-2	Extension Bar	3"	Long.
FX-6	Extension Bar	6"	Long.
FX-8	Extension Bar	8"	Long.
FX-11	Extension Bar	12"	Long.
FX-20	Extension Bar	20"	Long.

F-5-L Ferret Sliding Bar. Head slides to any position . . . a friction ball contacts groove in the handle to center the tool as a Tee handle. Handle length 8", diameter $1\frac{13}{32}$ ", head depth $1\frac{1}{16}$ ".

F-10-L Ferret Nut Spinner.^o Plenty of leverage for pulling nuts up tight or for breaking them loose . . . the swivel head is held in a semi-flex condition at any position by means of an inner spring. Length 9 $\frac{1}{4}$ ". Head diameter 1 $\frac{11}{16}$ ".
*Pat. Nos. 2,196,297, 2,005,202 and D-132,891

C ★FX-61 Ferret Flexension. Acts as a flexible drive between wrench handle and socket and provides an easy method of turning nuts in awkward positions . . . works around corners and over obstructions. The tool consists of a $\frac{3}{8}$ " diameter flexible steel cable with live rubber center shaft fitted securely to male and female square drive socket ends. Length is 8". Not intended for breaking nuts loose or similar tough jobs.



221-F-B Ferret Standard Set. This carefully selected assortment provides the basic hand tool equipment and thirteen sockets needed to handle a majority of nut turning jobs in automotive, aviation, refrigeration, and other service fields. Within its size range, no other set of wrenches can equal it for convenience and dependability. Set includes the specially designed KR-281 Metal Box which measures $9\frac{1}{2}" \times 5\frac{3}{4}" \times 1\frac{1}{2}"$.

Handles: F-71-B Ratchet (page 26), F-4-L Speeder; F-5-L Sliding Bar; F-10-L Nut Spinner; FX-2, FX-6, FX-11 Ext. Bars (page 27); FU-8A Universal Joint (page 29).

Sockets: FS-061, FS-101 Single Hex Sockets and eleven Double Hex Sockets F-121 to F-281, all listed on page 26.

221-F Ferret Set. Above set but tools only.

243-F-B Ferret Utility Set. For greater working convenience and faster servicing, replace old misfit wrenches with this set of 43 matched Ferret units. Their precision built, slender handles and sockets were originated by Snap-on to squeeze into tight places and service hard-to-reach nuts on intricate machines and engines that defy other types of wrenches. The high grade steels, provide amazing degrees of strength in such slender tools. Set includes the KR-250 metal box and tray, box measures 18½"x6¾"x4¼" and has suitcase type handle. Red enamel finish.

Handles: (Shown on pages 26-27) F-71-B Ratchet; F-4-L Speeder; F-3-L Sliding Bar; F-10-L Nut Spinner; F-40 Plastic Handle; FX-2, FX-6, FX-11 Ext. Bars; FX-51 Flextension; and FU-8A Universal Joint (page 29).

Sockets: (Shown on pages 28-29) 211-F Double Hex Socket Set; 210-SF Deep Double Hex Socket Set; FS-081, FS-101, FS-121, FS-141, FS-161, FS-181 Single Hex Sockets; FU-16A, FU-18A, FU-20A Flexockets; F-308, F-310, F-312 Double Square Sockets.

243-F Ferret Sgt. Above sgt but tools only.

FERRET SOCKETS with 3/8" SQUARE DRIVE



NEW FERRET LINE Offers The Finest Sockets And Attachments It Is Possible To Buy!

• **Longer Range of Sizes.** New sizes have been added to practically every series of Ferret sockets and attachments. These sizes, covering a range of 1/4" to 7/8", make the New Ferret Line a versatile combination of units.

• **New Socket Design** with beautiful chrome finish gives these tools a smooth, striking appearance... makes them stand out from other tools wherever they are used. They are easy to work with, too, for their thin walls enable them to squeeze into the closest places, yet afford the maximum strength necessary to break loose stubborn nuts and bolts. Larger, easier-to-read markings help you quickly spot the size you need.

• **Seven Socket Wrench Types.** The addition of the deep single hexagon socket series gives you three different styles of broaching in both the standard and extra deep lengths plus the handy Flexocket series. Seven different types, 36 different sockets in all.

• **Four Way Socket Grip.** The friction grip hole has been replaced with shallow indentations machined in all four sides of the square drive opening. This allows faster, more convenient interchanging of units as sockets grip securely on any of the four sides.

• **Chip-Curled Broaching.** No more rough bottoms inside the socket to collect dirt and grease. The smoothly rounded bottoming is formed during the hot broaching process to give you the finest in socket construction.

• **Wide Range of Attachments.** You can find a Ferret attachment for almost every job you'll run across, in sizes to fit your requirements. All have been redesigned to give you the finest in matched tool equipment.

A DEEP DOUBLE HEX

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	SF-121	1 1/2"	2 1/2"	1 3/4"
1/2"	SF-141	1 3/4"	2 3/4"	1 3/4"
5/8"	SF-161	2 1/4"	3 1/4"	1 3/4"
3/4"	SF-181	2 3/4"	3 3/4"	2"
13/16"	SF-191	3 1/4"	4 1/4"	2 1/4"
7/8"	SF-201	3 3/4"	4 3/4"	2 1/4"
1 1/8"	SF-221	4 1/4"	5 1/4"	2 1/2"
1 1/4"	SF-241	4 3/4"	5 3/4"	2 1/2"
1 1/2"	SF-261	5 1/4"	6 1/4"	2 1/2"
1 3/4"	SF-281	5 3/4"	6 3/4"	2 1/2"

B STANDARD DOUBLE HEX

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	F-121	1 1/2"	2 1/2"	20/32"
1/2"	F-141	1 3/4"	2 3/4"	1 3/4"
5/8"	F-161	2 1/4"	3 1/4"	1 3/4"
3/4"	F-171	2 3/4"	3 3/4"	1 3/4"
13/16"	F-181	3 1/4"	4 1/4"	1 3/4"
7/8"	F-191	3 3/4"	4 3/4"	1 3/4"
1 1/8"	F-201	4 1/4"	5 1/4"	1 3/4"
1 1/4"	F-221	4 3/4"	5 3/4"	1 3/4"
1 1/2"	F-241	5 1/4"	6 1/4"	1 3/4"
1 3/4"	F-261	5 3/4"	6 3/4"	1 3/4"
1 5/8"	F-281	6 1/4"	7 1/4"	1 3/4"

D STANDARD SINGLE HEX

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	FS-001	2 1/4"	2 1/4"	2 1/4"
1/2"	FS-101	2 3/4"	2 3/4"	2 1/4"
5/8"	FS-121	3 1/4"	3 1/4"	2 1/4"
3/4"	FS-141	3 3/4"	3 3/4"	2 1/4"
13/16"	FS-161	4 1/4"	4 1/4"	2 1/4"
7/8"	FS-181	4 3/4"	4 3/4"	2 1/4"
1 1/8"	FS-201	5 1/4"	5 1/4"	2 1/4"
1 1/4"	FS-221	5 3/4"	5 3/4"	2 1/4"
1 1/2"	FS-241	6 1/4"	6 1/4"	2 1/4"

C DEEP SINGLE HEX

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	SFS-121	1 1/2"	2 1/2"	1 3/4"
1/2"	SFS-141	1 3/4"	2 3/4"	1 3/4"
5/8"	SFS-161	2 1/4"	3 1/4"	1 3/4"
3/4"	SFS-181	2 3/4"	3 3/4"	2"
13/16"	SFS-201	3 1/4"	4 1/4"	2 1/4"

E STANDARD DOUBLE SQUARE

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
1/4"	F-300	1 1/2"	2 1/2"	27/32"
3/8"	F-310	1 3/4"	2 3/4"	1 3/4"
1/2"	F-312	2 1/4"	3 1/4"	1 3/4"
5/8"	F-314	2 3/4"	3 3/4"	1 3/4"
3/4"	F-316	3 1/4"	4 1/4"	1 3/4"
13/16"	F-318	3 3/4"	4 3/4"	1 3/4"
7/8"	F-320	4 1/4"	5 1/4"	1 3/4"

F SINGLE HEX FLEXOCKETS

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	FS-10A	1 1/2"	2 1/2"	1 3/4"
1/2"	FS-12A	1 3/4"	2 3/4"	1 3/4"
5/8"	FS-14A	2 1/4"	3 1/4"	1 3/4"
3/4"	FS-16A	2 3/4"	3 3/4"	1 3/4"
13/16"	FS-18A	3 1/4"	4 1/4"	1 3/4"
7/8"	FS-20A	3 3/4"	4 3/4"	1 3/4"

G DOUBLE HEX FLEXOCKETS

Wrench Size	Stock No.	Outside Diameter		Length
		Socket End	Handle End	
3/8"	FU-10A	1 1/2"	2 1/2"	1 3/4"
1/2"	FU-12A	1 3/4"	2 3/4"	1 3/4"
5/8"	FU-14A	2 1/4"	3 1/4"	1 3/4"
3/4"	FU-16A	2 3/4"	3 3/4"	1 3/4"
13/16"	FU-18A	3 1/4"	4 1/4"	1 3/4"
7/8"	FU-20A	3 3/4"	4 3/4"	1 3/4"
1 1/8"	FU-22A	4 1/4"	5 1/4"	1 3/4"
1 1/4"	FU-24A	4 3/4"	5 3/4"	1 3/4"



WEATHERHEAD SOCKETS

Remove and replace Weatherhead copper fittings without damaging these soft metal parts. 3 sizes, all 1 1/4" long.

FD-6 Socket. Fits 3/16" fitting.

FD-8 Socket. Fits 1/4" fitting.

FD-10 Socket. Fits 5/16" fitting.

FD-12 Socket. Fits 3/8" fitting.

HANDLE ADAPTORS

Enable you to interchange Ferret wrenches with Midget and Master units.

TM-1 Adaptor. Converts 3/8" sq. drive handles to 1/4".

TA-3 Adaptor. Converts 1/4" sq. drive handles to 3/8".

A-2 Adaptor. Converts 3/8" sq. drive handles to 1/2".

A-4 Adaptor. Converts 1/2" sq. drive handles to 3/4".

DRAG LINK SOCKET

F-22-A Drag Link Socket. A heavy duty, wide bladed screw driver attachment that will prove ideal for adjusting and tightening slotted nuts on steering gear assemblies, shock absorbers, drag links, etc. Blade is 1 1/4" wide and 7/64" thick. Overall length of tool 10 3/32".

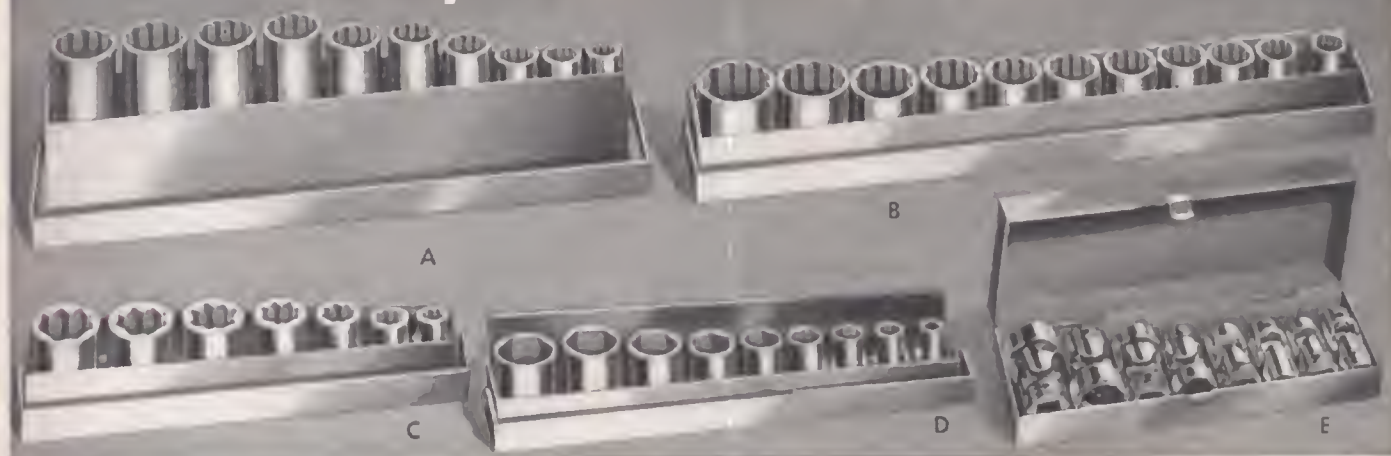
PAN SCREW DRIVERS

For removing Chevrolet pan screws. The F-21 is for 1939 and earlier models and the F-21-N for 1940 up to the present models. Blades are 3/16" thick.

★ **F-21 Pan Screw Driver.** Blade width 7/16", length 12 1/32".

★ **F-21-N Pan Screw Driver.** Blade width 1/2", length 1 5/8".

Handy FERRET SOCKET SETS



A 210-SF-T Deep Double Hex Socket Set, 10 piece set. Contains all deep double hex sockets SF-121 to SF-261 listed on opposite page, in KTR-231 metal tray.
210-SF Set. Above set, tools only.
KTR-231 Metal Tray.

B 211-F-T Standard Double Hex Socket Set, 11 piece set. Contains all standard double hex sockets F-121 to F-261 listed on opposite page, complete in KTR-230 metal tray.
211-F Set. Above set, tools only.
KTR-230 Metal Tray

C 207-F-T Standard Square Socket Set, 7 piece set. Includes all standard square sockets F-308 to F-320 listed on opposite page, in the KTR-233 metal tray.
207-F Set. Above set, tools only.
KTR-233 Metal Tray.

D 209-FS-T Standard Single Hex Socket Set. Includes all standard single hex sockets FS-081 to FS-241 listed on opposite page, in the KTR-232 metal tray.
209-FS Set. Above set, tools only.
KTR-232 Metal Tray.

E 208-FU-B Flexocket Set, 8 piece set. Flexockets FU-10A to FU-24A listed on opposite page, in the KR-223 metal box.

208-FU Set. Above set, tools only.
KR-223 Metal Box.

206-FS Single Hex Flexocket Set, 6 piece set. (Not illustrated). Contains Flexockets FS-10A to FS-20A. No box.

205-SFS Deep Single Hex Socket Set, 5 piece set. (Not illustrated). Contains all deep single hex sockets SFS-121 to SFS-201 listed on opposite page. No tray.



A



B



C



D

PHILLIPS SCREW DRIVERS AND BITS

A The detachable bits are tempered extremely hard for strength and wearability and are easily and inexpensively replaced when necessary. The FP-41 has a short bit for door handle work.

Phillips Bit Size	Complete Tool		Socket Only		Bit Only		Screw
	Stock No.	Length	Stock No.	Length	Stock No.	Length	
2	★FP-22	2 1/4"	FP-22-1	1 1/4"	★MP-22-2A	1 1/4"	6-40
3	★FP-12	2 1/4"	FP-12-1	1 1/4"	★FP-32-2A	1 1/4"	6-40
4	★FP-41	1 1/4"	FP-41-1	1 1/4"	★FP-41-2	1 1/4"	6-36
4	★FP-42	2 1/4"	FP-42-1	1 1/4"	★FP-42-2A	1 1/4"	6-16

STANDARD SCREW DRIVERS AND BITS

C Hexagon stock blades specially heat treated to give them strength and toughness necessary for long service life.

Complete Tool	Socket Only		Bit Only		Screw
	Stock No.	Tip Size	Stock No.	Length	
★F-21-C	1 1/4" x 1/4"	3"	F-21-C-1	1 1/4"	6-36
★F-25-C	1 1/4" x 1/4"	3"	F-25-C-1	1 1/4"	6-36
★F-31-C	1 1/4" x 1/4"	3 1/2"	F-31-C-1	1 1/4"	6-16



A



B



C

UNIVERSAL JOINTS

Patent No. 2,196,297

Saves a lot of time fumbling for those awkward-to-get-at nuts and bolts . . . works around obstructions and at an angle to do a fast efficient job which would otherwise entail the use of a slower type of wrench. Built in spring tension holds the tool in any desired position for easy application to the job.

A FU-8A Universal Joint, 3/4" O.D., length 1 3/16".

B FU-80A Universal Joint, 1 1/16" outside diameter, overall length 1 1/16".

PIPE PLUG SOCKETS

C These single square sockets are designed for use on the pipe plugs used on many current model cars. You can get at those fairly inaccessible plugs easily if you add these sockets to your Ferret equipment. Overall length 1 1/16".

PP-409 Socket, 1/2" wrench size.

PP-410 Socket, 5/16" wrench size.

PP-412 Socket, 3/8" wrench size.

HEX HEAD SCREW DRIVERS AND BITS

B Detachable bits permit individual heat treatment of parts for greater strength and toughness. If you break a bit you can replace it easily and cheaply without having to buy a complete new tool.

Wrench Size	Complete Tool		Socket Only		Bit Only		Screw
	Stock No.	Length	Stock No.	Length	Stock No.	Length	
3/4"	★FA-6	2 1/4"	FA-6-1	1 1/4"	★FA-6-2	1 1/4"	6-40
7/8"	★FA-7	2 1/4"	FA-7-1	1 1/4"	★FA-7-2	1 1/4"	6-40
1"	★FA-8	2 1/4"	FA-8-1	1 1/4"	★FA-8-2	1 1/4"	6-40
1 1/8"	★FA-16	2 1/4"	FA-16-1	1 1/4"	★FA-16-2	1 1/4"	6-16
1 1/4"	★FA-12	2 1/4"	FA-12-1	1 1/4"	★FA-12-2	1 1/4"	6-36

CLUTCH TYPE SCREW DRIVERS

D Clutch Type Screw Drivers. Ferret socket drivers to handle clutch-type screws, also known as "butterfly" or "figure-8" screws, which are becoming increasingly popular for production assembly work of various kinds. Both are one piece units made short to handle work in close quarters. Machined from high quality alloy steel and then carefully heat treated to give exceptional strength and toughness to the tips. Overall length 1 1/4".

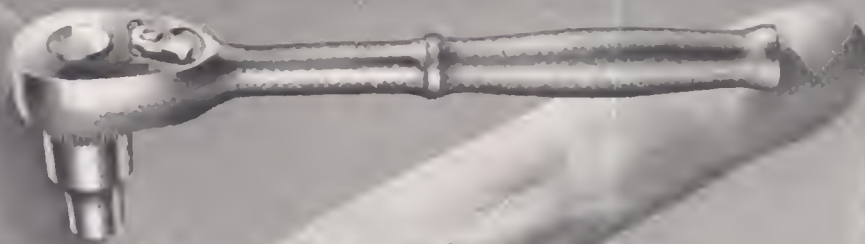
★F-29 Clutch Screw Driver. Bit diameter 1 1/16".

★F-30 Clutch Screw Driver. Bit diameter 1 1/16".

WHITWORTH AND METRIC WRENCHES

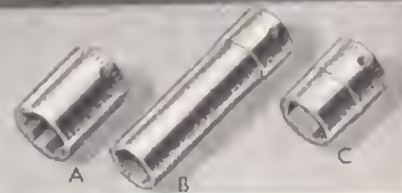
We can supply wrenches accurately broached to Whitworth and Metric standards in full ranges of practically all of our standard socket, boxsocket, combination, open-end and tappet wrench series. Write for special catalog sheets listing Snap-on's complete available Whitworth and Metric wrench line, or consult your Snap-on man.

Snap-on MIDGET SOCKET WRENCH



MIDGET RATCHET WRENCH—1/4" Square Drive

GM-70-M Midget Ratchet Wrench. The finest ratchet ever made in such a small size . . . a miniature model of our Standard Master Ratchets. It reverses by shifting the thumb lever. Gears have 20 teeth to allow working in only an 18° arc . . . it can be used in very close places where it is difficult to use other handles. The overall length is only 4 7/16", head thickness is 3/8".



SQUARE SOCKETS

A Double square broaching, thin walls for close-quarter work.

Wrench Size	Stock No.	Max. O. D.	Length
1/4"	TM-408	1 1/2"	3 1/2"
3/8"	TM-410	1 3/4"	3 1/2"
1/2"	TM-412	1 7/8"	3 1/2"

DEEP HEX SOCKETS

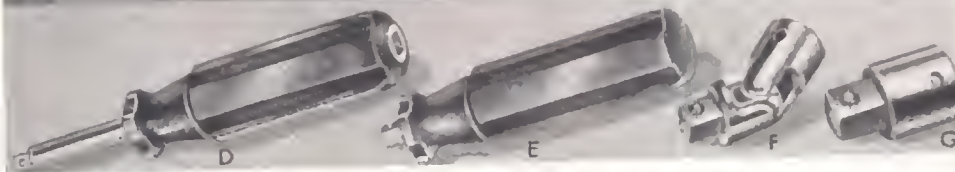
B Single hexagon broaching with bolt clearance length.

Wrench Size	Stock No.	Max. O. D.	Length
1/16"	STM-6	3/8"	2"
1/8"	STM-7	1/2"	1 7/8"
3/16"	STM-8	5/8"	2"
1/4"	STM-9	3/4"	2"
5/16"	STM-10	7/8"	2"
3/8"	STM-11	1"	2"
7/16"	STM-12	1 1/8"	2"
1/2"	STM-14	1 1/4"	2"

STANDARD HEX SOCKETS

C Single hexagon broaching with straight walls on all sizes

Wrench Size	Stock No.	Max. O. D.	Length
1/16"	TM-6	3/8"	3 1/4"
1/8"	TM-7	1/2"	3 1/4"
3/16"	TM-8	5/8"	3 1/4"
1/4"	TM-9	3/4"	3 1/4"
5/16"	TM-10	7/8"	3 1/4"
3/8"	TM-11	1"	3 1/4"
7/16"	TM-12	1 1/8"	3 1/4"
1/2"	TM-14	1 1/4"	3 1/4"
3/4"	TM-16	1 3/4"	3 1/4"



SPECIAL MIDGET UNITS—1/4" Square Drive

Plastic Grip Handles. Extremely useful, the shock-proof plastic Octo-Grip handle provides insulation for work on electrical jobs and gives a firm non-slip hand hold.

TM-45 Plastic Grip Handle. Has a 1/4" drive end inserted in handle so it can be used as an extension bar. Overall length 5 1/4", shank 2" long.

TM-4 Plastic Grip Handle. Same as TM-4-S but without handle drive end hole.

TM-40 Plastic Grip Handle short shank model, only 4 1/4" overall length.

TMU-8 Universal Joint. One of the biggest time savers you can own . . . works around obstructions to do a fast efficient job. Overall length is 1 15/16", 1 1/2" O.D., 1/4" square drive.

Adaptors. Permit interchange of 1/4" square drive units with 3/8" and 1/2" square drive handles and sockets.

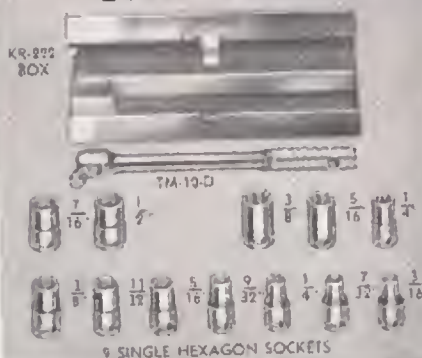
A-6 Adaptor converts 3/8" handle to 1/4".

A-8 Adaptor converts 1/2" handle to 1/4".

TM-1 Adaptor converts 3/4" handle to 1/4".

TA-3 Adaptor converts 1/4" handle to 3/8".

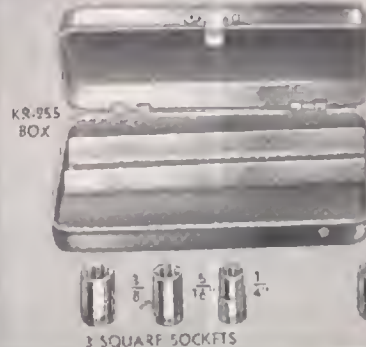
EVERY MECHANIC NEEDS A MIDGET WRENCH SET FOR SMALL ASSEMBLY



113-TM-B MIDGET BASIC SET

113-TM-B Midget Basic Set. For the man who wishes to start with the basic units as a good foundation on which to build his complete set. Set consists of TM-10-D Nut Spinner (see opposite page) and nine standard hexagon sockets and three square sockets listed above, in KR-222 metal box.

113-TM Set. Above set tools only.

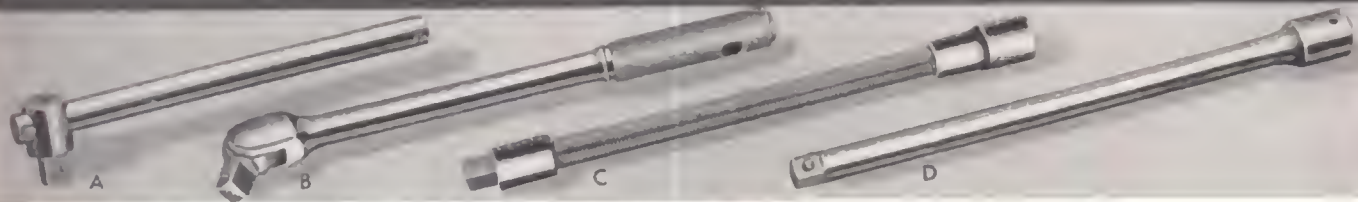


119-TM-B MIDGET STANDARD SET—19 Tools

119-TM-B Midget Standard Set. Contains the nineteen most needed Midget wrenches . . . a fine set for workers in any line of business where small nuts or bolts have to be turned. When you have small, nut turning jobs to do lay aside those "too-big" tools and put speed and working convenience into your hands with tools tailored to the job. Set consists of TM-10-D Nut Spinner, TM-2 and TM-60 Extension Bars, TM-5 Sliding Bar, (see opposite page), GM-70M Ratchet, TM-4 Plastic Grip Handle, TMU-8 Universal Joint, the nine standard hexagon sockets and three square sockets all listed above. Complete in convenient KR-222 red enameled metal box.

119-TM Midget Set. Above set of Midget tools without the box.

SETS WITH 1/4" SQUARE DRIVE



MIDGET HANDLES AND ATTACHMENTS

TM-5 Midget Sliding Bar. Combines a tee handle with an offset handle. Sliding head can be used at any position on handle and can be slid back and forth to provide turning room without removing tool from job. Handle length is 4 1/2", head depth is 1 3/16", 1/4" drive.

TM-10-D Midget Nut Spinner.* A handle providing the utmost utility . . . head is held in a semi-flex condition by a hidden spring and can be used at any position from the handle. Combines a speeder handle for quicker nut-turning and an offset handle for bringing them up tight. Length 6".

*Pat. Nos. 2,196,297 and 2,005,202

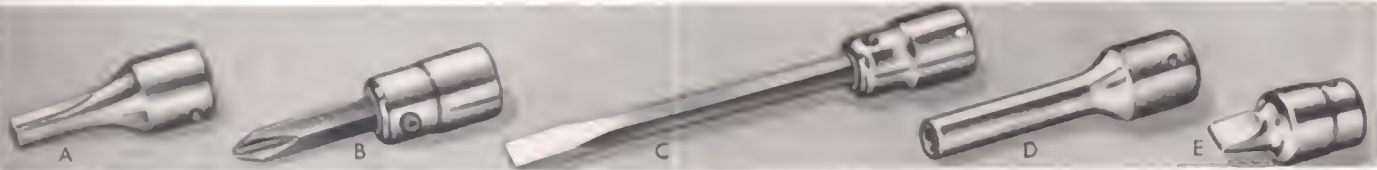
★TM-61 Midget Flexextension. Made of best 1/4" diameter flexible cable, this addition to your Midget line of tools will help you reach awkward, hard-to-get-at nuts where a solid handle or extension bar cannot possibly be used. Not intended for breaking loose tight nuts, etc. Length 6".

Midget Extension Bars. Lengthen the reach and increase the adaptability of Midget handles. Three popular sizes give you maximum convenience when working on tiny jobs.

TM-2 Extension Bar.....2" overall length.

TMX-4 Extension Bar.....4" overall length.

TM-60 Extension Bar.....6" overall length.



Midget Clutch-type Screw Drivers. Built short for close-quarter work, these drivers provide the best method of turning clutch-type screws, sometimes called "butterfly" or "figure-8" screws. 1/4" square drive, 1 3/8" long.

★TM-27 Screw Driver. 1 3/16" bit diameter.

★TM-30 Screw Driver. 1 9/16" bit diameter.

★TM-31 Screw Driver. 1 1/2" bit diameter.

Windshield Wiper Sockets. For turning windshield wiper overhead screws.

TM-22A Socket...1 1/4"x1 1/4" oval opening. Overall length of above is 1 7/8".

TM-23 Socket...1 1/2"x1 1/2" oval opening. Overall length of above is 1 3/4".

Midget Phillips Screw Drivers. On many applications a socket wrench handle and screw driver attachment is preferred to the use of a standard type driver. Refer to page 53 for Phillips screw and bit sizes. Bits 2 3/4" long.

★TMP-12 No. 1 bit Phillips Screw Driver.

★MP-12-2A Extra No. 1 bit for above.

★TMP-22 No. 2 bit Phillips Screw Driver.

★MP-22-2A Extra No. 2 bit for above.
No. 6-40 Allen Set Screw for above.

TM-21 Short Screw Driver. Can often be used to great advantage where working space is limited. Blade tip is 1/4"x.038". Overall length 1".

Standard Screw Drivers. Slender, long screw drivers with standard tip. Useful for carburetor work and for turning small screws. Each is 3 1/4" long.

★TMC-104 Screw Driver. 3/16"x.032" tip.
TMC-104-1 Socket only.

★TMC-104-2 Extra Bit.

★TMC-105 Screw Driver. 1/4"x.032 tip.

TMC-105-1 Socket only.

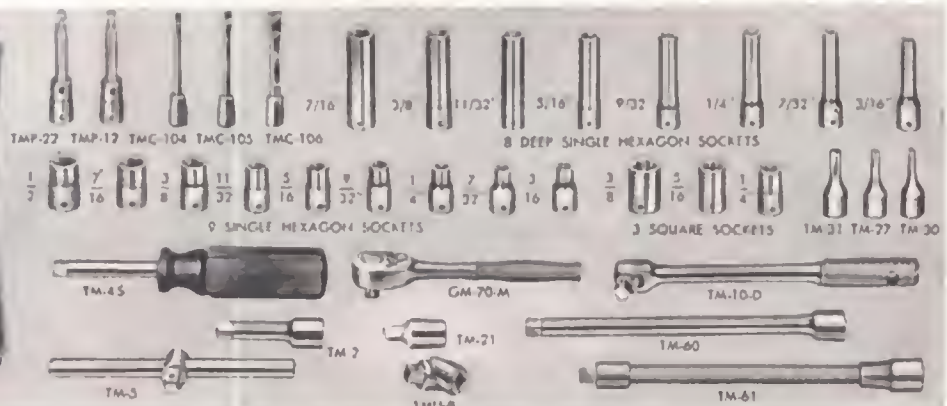
★TMC-105-2 Extra Bit.

★TMC-106 Screw Driver. 5/16"x.042" tip.

TMC-106-1 Socket only.

★TMC-106-2 Extra Bit.

4-48 Set Screw for above tools.

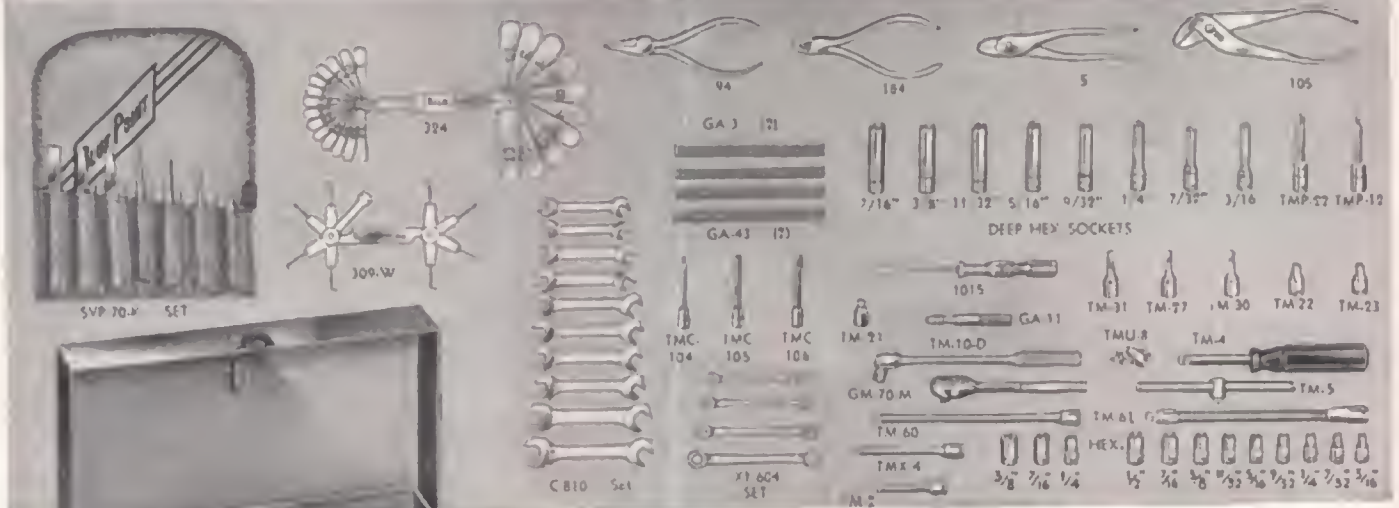


137-TM-B MIDGET UTILITY SET—37 Tools in Convenient Metal Box.

137-TM-B Midget Utility Set. Midget handles and sockets together with special screw driving attachments. This is a real utility set of midget wrenches for garage and service station, aircraft instrument assembly and service, and all other businesses where tiny socket wrenches are needed for product assembly or maintenance. Each tool is proportioned and built to Snap-on's high standards of design and quality with wrench openings precision machined to insure accurate fitting to tiny nuts and bolts. Every one of these tools is scientifically heat treated to impart long wearing qualities . . . polished chromium plate finish.

Set consists of the following tools: GM-70-M Ratchet, TM-5 Sliding Bar, TM-10-D Nut Spinner, TM-4S Plastic Grip Handle, TMU-8 Universal Joint, TM-2 and TM-60 Extension Bars, TM-61 Flexextension, 9 Standard Single Hex Sockets TM-6 to TM-16, 8 Extra Deep Single Hex Sockets STM-6 to STM-14, 3 Double Square Sockets, TM-408, TM-410 and TM-412, 4 Standard Screw Driver Sockets TM-21, TMC-104, TMC-105 and TMC-106, 2 Phillips Screw Drivers TMP-12 and TMP-22, 3 Clutch-type Screw Drivers TM-27, TM-30 and TM-31. All these in the KR-275 red enameled metal box. **137-TM Midget Set.** Above set of tools without the box.

1173-TM-B GENERAL PURPOSE MIDGET SET— $\frac{1}{4}$ " Square Drive



1173-TM-B General Purpose Midget Set. These tiny tools, built and sized to precision tolerances add dexterity to the work-hardened hands of every man whose job calls for the assembly or repair of small machines or equipment. They are the ideal complement for the small, nimble fingers of women assembly workers. This selection provides a real utility set for garage or service station, airline maintenance mechanics, typewriter, dictaphone, sewing machine service men, etc., in fact for anyone working where small machines are to be repaired or adjusted. Complete in KR-65B Metal Box.

1173-TM Set. Above set but without the metal box.

Stock No.	Description	Story on Page
GM-76-M	Midget Ratchet	30
TM-5	Midget Siding Bar	31
TM-10-D	Midget Nut Spinner	31
TM-4	Midget Plastic Grip Handle	30
TMU-8	Midget Universal Joint	30
TM-2	Midget Ext. Bar, 2" long	31
TMX-4	Midget Ext. Bar, 4" long	31
TM-60	Midget Ext. Bar, 6" long	31
TM-61	Midget Flexionation	31
TM-6	$\frac{1}{16}$ " Midget Hex. Socket	30
TM-7	$\frac{1}{8}$ " Midget Hex. Socket	30
TM-8	$\frac{1}{4}$ " Midget Hex. Socket	30
TM-9	$\frac{3}{8}$ " Midget Hex. Socket	30
TM-10	$\frac{1}{2}$ " Midget Hex. Socket	30
TM-11	$\frac{3}{4}$ " Midget Hex. Socket	30

Stock No.	Description	Story on Page
TM-12	$\frac{1}{16}$ " Midget Hex. Socket	30
TM-14	$\frac{1}{8}$ " Midget Hex. Socket	30
TM-16	$\frac{1}{4}$ " Midget Hex. Socket	30
TM-100	$\frac{1}{16}$ " Midget Square Socket	30
TM-101	$\frac{1}{8}$ " Midget Square Socket	30
TM-102	$\frac{1}{4}$ " Midget Square Socket	30
TM-103	$\frac{3}{8}$ " Midget Square Socket	30
TM-104	$\frac{1}{2}$ " Midget Square Socket	30
TM-105	$\frac{3}{4}$ " Midget Square Socket	30
TM-106	$\frac{1}{16}$ " Midget Deep Hex. Socket	30
TM-107	$\frac{1}{8}$ " Midget Deep Hex. Socket	30
TM-108	$\frac{1}{4}$ " Midget Deep Hex. Socket	30
TM-109	$\frac{3}{8}$ " Midget Deep Hex. Socket	30
TM-110	$\frac{1}{2}$ " Midget Deep Hex. Socket	30
TM-111	$\frac{3}{4}$ " Midget Deep Hex. Socket	30
TM-112	$\frac{1}{16}$ " Midget Deep Hex. Socket	30
TM-113	$\frac{1}{8}$ " Midget Deep Hex. Socket	30
TM-114	$\frac{1}{4}$ " Midget Deep Hex. Socket	30
TM-115	$\frac{3}{8}$ " Midget Deep Hex. Socket	30
TM-116	$\frac{1}{2}$ " Midget Deep Hex. Socket	30
TM-117	$\frac{3}{4}$ " Midget Deep Hex. Socket	30
TM-118	$\frac{1}{16}$ " Midget Oval Wiper Socket	31

Stock No.	Description	Story on Page
TM-23	$\frac{1}{16}$ " x $\frac{1}{16}$ " Oval Wiper Socket	31
TM-12	No. 1 Phillips Sc. Driver Socket	31
TM-22	No. 2 Phillips Sc. Driver Socket	31
TM-21	Short Midget Screwdriver	31
TMC-104	$\frac{1}{16}$ " Midget Screwdriver Socket	31
TMC-105	$\frac{1}{8}$ " Midget Screwdriver Socket	31
TMC-106	$\frac{1}{4}$ " Midget Screwdriver Socket	31
TM-27	$\frac{1}{16}$ " Clutch Sc. Driver Socket	31
TM-31	$\frac{1}{8}$ " Clutch Sc. Driver Socket	31
TM-30	$\frac{1}{4}$ " Clutch Sc. Driver Socket	31
SVP-70-K	Midget Punch & Chisel Set	54
C-810	Ignition Wrench Set	49
X1-604	Midget Boxsocket Set	39
GA-11	Screw Starter	53
1015	Screw Driver	51
5	Midget Gripping Pliers	57
105	Midget Ignition Pliers	57
94	Midget Needle Nose Pliers	57
184	Midget Diagonal Cutters	57
224	Feeler Gauge	50
309-W	Spark Plug Gauge	50
GA-1	Flexstones (2 included)	64
GA-41	Thin Flexstones (2 included)	64
KR-65B	Special Metal Box	8



SOCKET HEX HEAD WRENCHES

A Hex head socket attachments for use with $\frac{1}{4}$ " and $\frac{3}{8}$ " square drive handles. Two piece construction allows individual heat treating of the parts for maximum service life. The bits are held securely in the socket by means of set screws. See page 29 for $\frac{1}{8}$ " drive sizes.

Wrench Size	Complete Tool		Extra Bit Only	
	Stock No.	Length	Stock No.	Length
$\frac{1}{2}$ " Square Drive				
$\frac{3}{8}$ "	★SA-12	$2\frac{1}{16}$ "	★SA-12-2	$1\frac{1}{16}$ "
$\frac{1}{2}$ "	★SA-16	$3\frac{1}{16}$ "	★SA-16-2	$2\frac{1}{16}$ "
$\frac{3}{4}$ "	★SA-18	$3\frac{3}{16}$ "	★SA-18-2	$2\frac{3}{16}$ "
$\frac{3}{4}$ " Square Drive				
$\frac{1}{2}$ "	★LAW-118	$3\frac{1}{8}$ "	★SA-18-2	$2\frac{3}{16}$ "
$\frac{3}{4}$ "	★LAW-120	$3\frac{3}{8}$ "	★LAW-120-2	$2\frac{3}{8}$ "
$\frac{1}{1}$ "	★LAW-124	$4\frac{1}{8}$ "	★LAW-124-2	$3"$

BAR HEX HEAD WRENCHES

B Sizes are available for all the popular Allen Head Screws in use. Don't use a screwdriver or some other make shift method to try to turn these screws. It's much easier and faster to use a wrench designed for that purpose. A cheaper tool, for you'll probably ruin the tip of the screwdriver in the attempt.

Stock No.	Size	Stock No.	Size	Stock No.	Size
★AW-1 $\frac{1}{4}$	$\frac{3}{16}$ "	AW-5	$\frac{3}{32}$ "	AW-12	$\frac{1}{8}$ "
AW-2	$\frac{1}{8}$ "	AW-6	$\frac{1}{4}$ "	AW-16	$\frac{1}{4}$ "
AW-2 $\frac{1}{2}$	$\frac{5}{16}$ "	AW-7	$\frac{1}{2}$ "	AW-18	$\frac{3}{8}$ "
AW-3	$\frac{3}{8}$ "	AW-8	$\frac{3}{4}$ "	AW-20	$\frac{7}{8}$ "
AW-4	$\frac{1}{2}$ "	AW-10	$\frac{5}{8}$ "	AW-24	$\frac{1}{1}$ "

Hex Head Wrench Sets

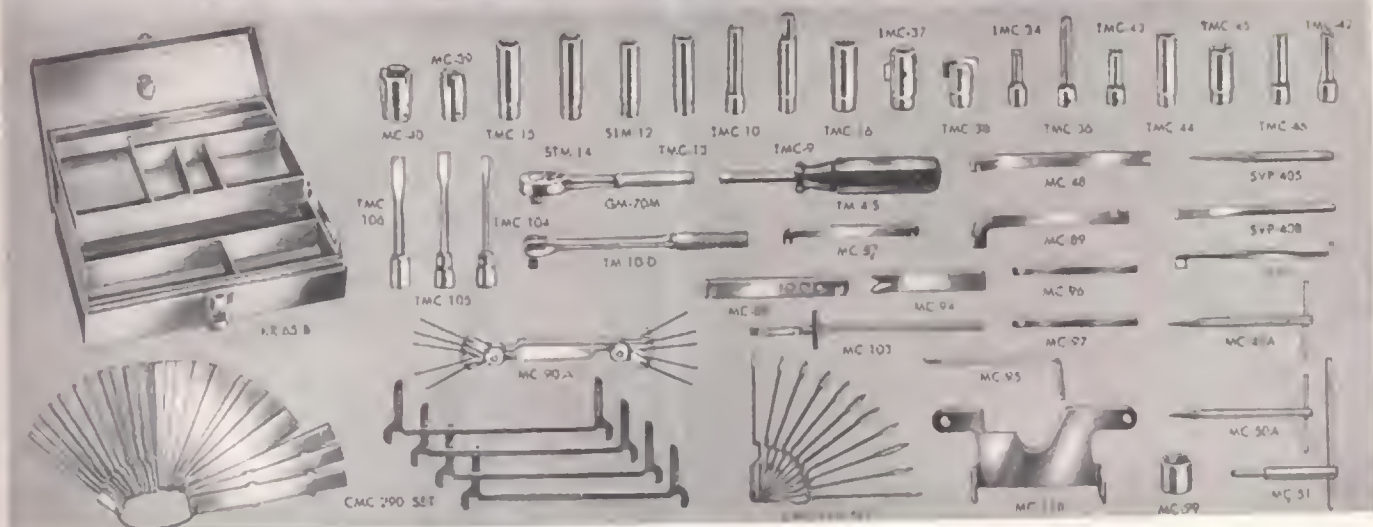
C AW-1011-K Set consists of following 11 Hex head wrenches: AW-1 $\frac{1}{4}$, AW-2, AW-3, AW-4, AW-5, AW-6, AW-7, AW-8, AW-10, AW-12. Complete in Kit Bag C-112A.

D AW-1015-K Set consists of following 15 wrenches: AW-1 $\frac{1}{4}$, AW-2, AW-3, AW-4, AW-5, AW-6, AW-7, AW-8, AW-10, AW-12, AW-16, AW-18, AW-20, AW-24. Complete in Kit Bag C-153A.

AW-1011 Above Set, tools only.

AW-1015 Above Set, tools only.

144-TMC-B SPECIAL CARBURETOR SERVICE SET



ALL SOCKET WRENCHES IN THIS SET ARE $\frac{1}{4}$ " SQUARE DRIVE

Stock No.	Description	See Page	Stock No.	Description	See Page	Stock No.	Description	See Page
GM-71-M	Midget Ratebet	30	TMC-44	Pronged Carburetor Socket	Below	MC-89	Bending Tool	Below
TM-10-0	Midget Nut Spanner	31	TMC-45	Pronged Carburetor Socket	"	MC-94	Rivet Extractor	"
TM-45	Midget Plastic Grip Handle	30	TMC-37	Special Screw Driver Socket	"	MC-95	Retainer Ring Puller	"
STM-13	$\frac{1}{8}$ " Midget Deep Hex Socket	30	TMC-39	Special Screw Driver Socket	"	MC-99	Pump Loading Cylinder	"
STM-14	$\frac{1}{8}$ " Midget Deep Hex Socket	30	TMC-104	Midget Screw Driver	31	MC-96	.015" Feeler Gauge	"
TMC-9	$\frac{1}{8}$ " Hex Carburetor Socket	Below	TMC-105	Midget Screw Driver	31	MC-97	.010" Feeler Gauge	"
TMC-10	$\frac{1}{8}$ " Hex Carburetor Socket	"	TMC-108	Midget Screw Driver	31	MC-101	6" Depth Gauge	"
TMC-11	$\frac{1}{8}$ " Hex Carburetor Socket	"	MC-39	Small Ring Insertor Socket	Below	MC-110	$\frac{1}{8}$ " Special Float Level Gauge	"
TMC-16	$\frac{1}{8}$ " Hex Carburetor Socket	"	MC-40	Large Ring Insertor Socket	"	MC-90A	Carburetor Wire Gauge Set	"
TMC-15	$\frac{1}{8}$ " Special Check Valve Socket	"	MC-48	Economizer Valve Wrench	"	CMC-111	Metering Rod Gauge Set	"
TMC-42	Small Special Oval Socket	"	MC-49A	Small Jet Puller	"	CMC-290	Float Level and Unloader Set	"
TMC-46	Large Special Oval Socket	"	MC-50A	Large Jet Puller	"	020	Small Offset Screw Driver	53
TMC-36	Special Jet Socket	"	MC-51	Main Vent Puller	"	SVP-405	Midget Starter Punch	54
TMC-34	Pronged Carburetor Socket	"	MC-87	Bending Tool	"	SVP-498	Midget Flat Chisel	54
TMC-43	Pronged Carburetor Socket	"	MC-88	Bending Tool	"	KR-65B	Universal Midget Kit	H

Description of Special Carburetor Tools Shown in Above Set

★MC-90A Carburetor Wire Gauge Set. Used to crack the throttle for anti-percolator and fast idle adjustments. Contains all sizes listed below MC-90-10 to MC-90-54.

★MC-90-10	.010" Wire	★MC-90-26	.026" Wire
★MC-90-12	.012" Wire	★MC-90-30	.030" Wire
★MC-90-15	.015" Wire	★MC-90-40	.040" Wire
★MC-90-18	.018" Wire	★MC-90-45	.045" Wire
★MC-90-20	.020" Wire	★MC-90-53	.053" Wire
★MC-90-23	.023" Wire	★MC-90-54	.054" Wire

★CMC-110 Metering Rod Gauge Set. Essential for setting the metering rod position for proper operation. Contains two gauges each of MC-107 and MC-109 and one each of all others listed below.

★MC-107	2.280" long (2 req.)	★MC-112	2.718" long.
★MC-108	2.312" long	★MC-113	2.740" long
★MC-109	2.350" long (2 req.)	★MC-114	2.795" long.
★MC-110	2.440" long	★MC-115	2.940" long.
★MC-111	2.468" long		

CMC-290 Carburetor Float Level and Unloader Set. Contains 29 gauges listed below for checking the float level and the unloader setting on Carter carburetors.

Float and Unloader Gauges		Float Gauges	
MC-60	$\frac{3}{32}$ "	MC-82	$\frac{3}{32}$ "
MC-61	$\frac{1}{8}$ "	MC-83	$\frac{1}{8}$ " & $\frac{3}{16}$ "
MC-62	$\frac{9}{32}$ "	MC-84	$\frac{1}{4}$ " & $\frac{5}{16}$ "
MC-63	$\frac{1}{2}$ "	MC-85	$\frac{5}{16}$ "
MC-64	$\frac{11}{16}$ "	MC-86	$\frac{3}{4}$ "
MC-65	$\frac{1}{2}$ "	MC-116	$\frac{3}{4}$ "
MC-66	$\frac{1}{2}$ "	MC-917	$\frac{3}{4}$ "
MC-67	$\frac{1}{2}$ "		
MC-68	$\frac{1}{2}$ "		
MC-69	$\frac{1}{2}$ "		
MC-70	$\frac{1}{2}$ "		

TMC-9 9/32" Double Hexagon Socket. Nose diameter $\frac{1}{8}$ ". 2 1/4" overall length.

TMC-10 5/16" Double Hexagon Socket. Diameter of the nose is $\frac{3}{16}$ ". 2 1/4" overall length.

TMC-16 1/2" Double Hexagon Socket. Outside diameter is $\frac{1}{2}$ ". 1 1/4" overall length.

TMC-13 13/32" Double Hexagon Socket. Outside diameter is $\frac{1}{2}$ ". 2" overall length.

TMC-15 15/32" Single Broached Hexagon Socket. Designed expressly for turning the check valve in Stromberg carburetors. The hexagon opening is especially designed to fit this valve and the tool should not be used for turning standard hex nuts. Outside diameter is $\frac{1}{2}$ ". length is 2 1/4".

TMC-46 Large Oval Socket. Designed to fit the jet on single throat Stromberg carburetors on all cars except Ford.

TMC-42 Small Oval Socket. Correct size to fit the small jets on dual Stromberg carburetors.

TMC-34 Jet Socket. For removing Carter pump jets. Prongs are $\frac{1}{16}$ " deep, .047" wide, $\frac{1}{16}$ " long. Socket length 1 1/2", outside diameter of nose $\frac{1}{2}$ ".

★TMC-36 Socket for Chandler-Grove Carburetor Jets. Two prongs engage the slots in the jet while a pilot centers the tool.

★TMC-45 Pronged Socket. Prongs are $\frac{1}{16}$ " deep, .087" wide, $\frac{1}{16}$ " long. Socket length is 1 1/4" and outside diameter $\frac{1}{2}$ ".

★TMC-44 Pronged Socket. Prongs are $\frac{1}{16}$ " deep, .052" wide, $\frac{1}{16}$ " long. Socket is 2" long, $\frac{1}{2}$ " outside diameter.

★TMC-43 Pronged Socket. Prongs are $\frac{1}{16}$ " deep, .052" wide, $\frac{1}{16}$ " long. Socket is 1 1/2" long, $\frac{1}{2}$ " outside diameter.

TMC-37 Screw Driver Socket. For type "D" Stromberg piston sleeve.

TMC-38 Screw Driver Socket. For Stromberg main discharge jet.

MC-39 Small Ring Insertor Socket. For installing retainer ring in pump cylinder.

MC-40 Large Ring Insertor Socket. For installing retainer ring in pump cylinder. Can be used as a bending tool.

MC-48 Economizer Valve Wrench.

★MC-49A Large Jet Puller. Pulling end tapers from $\frac{3}{16}$ " to $\frac{1}{4}$ " diameter. Makes jet removing an easy job.

★MC-50A Small Jet Puller. Pulling end tapers from $\frac{1}{16}$ " to $\frac{1}{4}$ " diameter

MC-51 Puller and Insertor Tool. For main vent tube on the Carter "B & B" carburetor used on Chrysler, Nash and Studebaker.

★MC-87 Bending Tool. For metering rod and anti percolator adjustments.

★MC-88 Bending Tool. For bending lip on fast idle connector link and for adjusting metering rod setting. Holes can be used for linkage adjustments as well.

★MC-89 Bending Tool. For bending cam to make unloader settings. Also used to make linkage adjustments.

★MC-94 Rivet Extractor. Used to drive out rivets or port plugs when reconditioning of the carburetor is necessary.

★MC-95 Carburetor Retainer Ring Puller. Removes the intake check ball retainer ring on Carter carburetors.

★MC-99 Pump Loading Cylinder. Operates like a piston insertor for inserting pump assembly into cylinder.

★MC-103 Depth Gauge. Calibrated in 64ths to measure pump travel on carburetors which specify a pump setting.

★MC-96 Feeler Gauge. .015" x $\frac{1}{4}$ " x $\frac{3}{4}$ " flat feeler gauge for anti-percolator and unloader adjustments.

★MC-97 Feeler Gauge. .010" x $\frac{1}{4}$ " x $\frac{3}{4}$ " flat feeler gauge for anti-percolator and unloader adjustments.

MC-118 Float Level Gauge. For AA series Stromberg carburetor.

WHY THE Snap-on TORQOMETER IS THE

BACKED BY THIS GUARANTEE

Snap-on Torquometers are thoroughly tested and inspected before leaving the factory and warranted to be in perfect working condition . . . we will repair or replace free of charge any parts that prove defective within 90 days from date of delivery, or repair at nominal service charge any part which (in our judgment) has been misused or damaged, providing no other repair work has been performed by others.

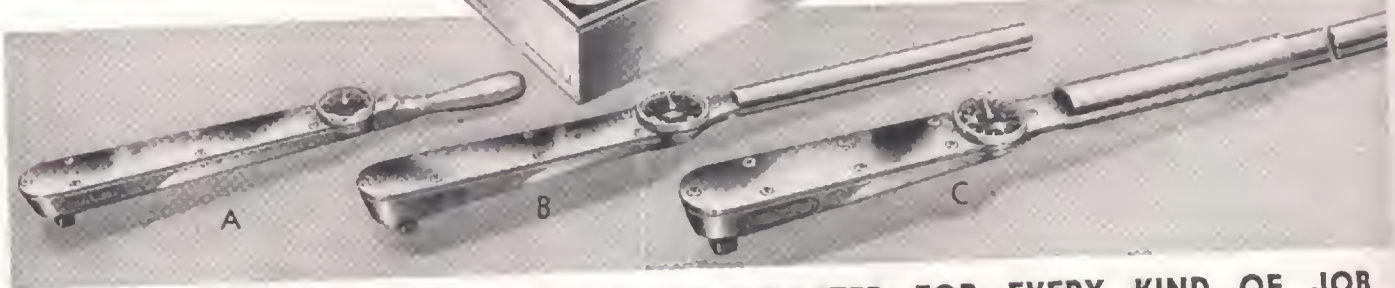
Accurate

Dependable

Rugged

Patented Nos. 2,312,104; 2,314,623; 2,343,380; 2,367,224; 2,374,217 and other patents pending. Also patented in foreign countries.

KR-130A Metal Box. Give your Torquometer the protection a precision wrench of its nature deserves. This sturdy metal box is made expressly for the TQ-150 and has additional space for the 67-B Ratchet Adaptor (page 22) as well as all the special cylinder head wrenches (pages 84-86). Made of heavy gauge steel, spot welded and finished in baked-on red enamel. Overall length 17 $\frac{1}{2}$ " wide 6 $\frac{1}{2}$ " height 3 $\frac{1}{2}$ ".



SNAP-ON BUILDS THE RIGHT SIZE TORQOMETER FOR EVERY KIND OF JOB

0-30 Inch Pound Model

TQ-3 Torquometer. Type **A**. This tool has a $\frac{1}{4}$ " square drive to fit Midget sockets and attachments (pages 30, 31, 33). Especially useful for small jobs within a torque capacity of zero to 30 inch pounds. It is 1 $\frac{1}{8}$ " deep, 1 $\frac{1}{2}$ " wide and 9" long.

0-150 Inch Pound Models

TQ-12-A Torquometer. Type **A**. The $\frac{3}{8}$ " square drive on this tool fits Ferret sockets and attachments (pages 27, 28, 29). Zero to 150 inch pound torque capacity. This model is useful for many operations on aircraft, etc. It is 1 $\frac{3}{16}$ " deep, 1 $\frac{1}{2}$ " wide and 13 $\frac{1}{4}$ " long.

TQ-12-AL Torquometer. Same model as above but with flash attachment.

0-600 Inch Pound Models

TQ-50-A Torquometer. Type **A**. Fits Ferret $\frac{1}{2}$ " sq. drive sockets and attachments (pages 27, 28, 29). A popular tool for automotive and aviation service. Dial is calibrated from zero to 600 inch pounds. Tool is 1 $\frac{3}{16}$ " deep, 1 $\frac{1}{2}$ " wide and 13 $\frac{1}{4}$ " long.

TQ-50-AL Torquometer. Same as TQ-50-A above, but has built in flash attachment.

TQ-50-AF Torquometer. Same as TQ-50-A above but calibrated 0 to 50 ft. lbs.

TQ-51-A Torquometer. Type **E**. This model is the same size and capacity as the TQ-50-A above, but is constructed with a $\frac{1}{2}$ " square drive for use with Master sockets and attachments (pages 22, 23, 24, 25).

0-150 Foot Pound Models

TQ-150 Torquometer. Type **A**. This tool has a $\frac{1}{2}$ " square drive and fits Master units (pages 22, 23, 24, 25). Our most popular model for general automotive, aviation and light-tractor service also for light industrial bolt tensioning. It measures 1 $\frac{3}{16}$ " deep, 1 $\frac{1}{2}$ " wide, 16 $\frac{1}{2}$ " long. Dial calibrated zero to 150 ft. lbs.

TQ-150-L Torquometer. Same as the model above but fitted with flash attachment.

0-250 Foot Pound Model

TQ-250 Torquometer. Type **E**. $\frac{1}{2}$ " square drive fits Master units (pages 22, 23, 24, 25). An all purpose tool for heavy trucks, trailers, buses, small industrial engines, etc. Dial calibrated zero to 250 ft. lbs. 1 $\frac{5}{8}$ " deep, 2" wide, 24" long.

FINEST TOOL FOR ACCURATE BOLT TENSION

the right tension . . . as easy as telling time



THESE SUPERB FEATURES MAKE IT AMERICA'S FINEST

Even veteran mechanics cannot be expected to guess correct bolt tension . . . or estimate even close to uniform accuracy where a series of bolts must be tightened. But with a Snap-on Torqometer the most inexperienced worker can hit the specified bolt torque every time . . . right to the correct inch or foot pound . . . and do it swiftly and confidently. He sees the applied torque as the bolt is tightened.

For accurate servicing where perfect results are imperative, there is no substitute for a Snap-on Torqometer for uniform tightening of threaded parts.

The use of torque measuring wrenches is industry wide and Snap-on Torqometers have solved mechanical distortion problems in hundreds of plants.

• **LIGHT WEIGHT**—Well-balanced streamlined design for ease of operation.

• **TORQUE MEASURING PRINCIPLE**—Snap-on Torqometers determine bolt tension by measuring the amount of twist (torque) developed in a specially heat treated alloy steel plug within the instrument as bolt turning pressure is applied.

• **FRICTION-FREE OPERATION**—Floating connecting beam between torque plug and dial mechanism has no bearing points and consequently no friction drag. This floating beam construction together with the watch-like precision of the dial mechanism renders the Torqometer practically "friction-free."

• **EXTREME SENSITIVENESS**—The applied torque is amplified approximately 500 times on the dial for hairline accuracy in torque measurement.

• **SHOCK-PROOF DIAL MECHANISM**—With indicating hand that may be pre-set to any desired position on the clear view dial located at the handle end.

• **FOR RIGHT, AND LEFT HAND THREADS**—Dial pointer works both ways on the dial.

• **WHITE CALIBRATIONS**—Against a black dial background make the Torqometer easy to read—the same as the instrument panel on an airplane.

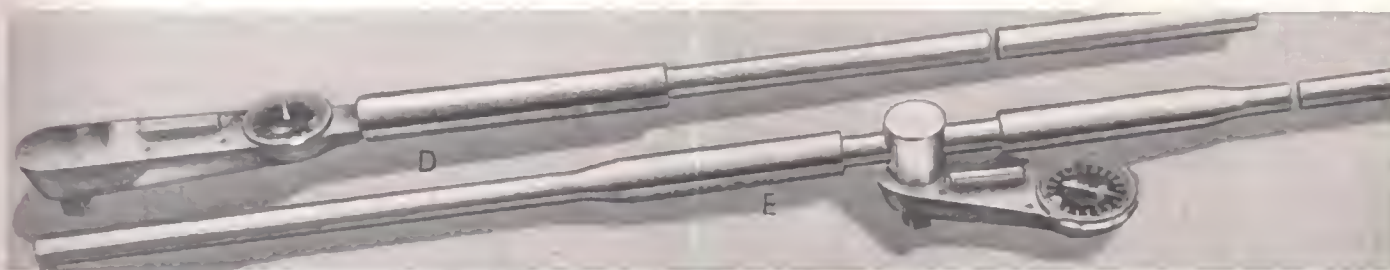
• **BUILT-IN SAFETY FACTORS**—Constructed to withstand an overload beyond dial capacity of each model far greater than the average mechanic is apt to apply. A slip clutch protects pointer mechanism.

• **CONSISTENT READINGS**—The accuracy of the Torqometer is not affected by the way it is held. Pull on the end of the handle or close to the dial and the reading remains the same. This is not true of all tension wrenches.

• **FLASHLIGHT MODELS**—For use in dark and hard-to-get-at locations.

• **15 STANDARD MODELS**—Ranging in capacity from 0 to 30 inch pounds upwards to 2,000 foot pounds. This range allows for use in any phase of assembly or maintenance service.

• **GUARANTEE**—Torqometers are guaranteed for 90 days after delivery from defects resulting from manufacture. After that time, speedy factory service will permit replacement of damaged parts at a minimum cost.



15 MODELS, 0-30 INCH POUND TO 0-2000 FOOT POUND TORQUE CAPACITY

0-350 Foot Pound Models

TQ-352-A Torqometer. Type **A**. $\frac{3}{4}$ " square drive fits Heavy Duty units (pages 18, 19). For trucks, tractors, buses, medium diesels, etc. Dial calibrated zero to 350 ft. lbs. It is $1\frac{1}{2}$ " deep, $2\frac{1}{4}$ " wide, length with handle 32", without handle 24".

TQ-352-AL Torqometer. Same as above model but with flash attachment.

0-600 Foot Pound Models

TQ-602-A Torqometer. Type **B**. $\frac{3}{4}$ " square drive to fit Heavy Duty units (pages 18, 19). Dial calibrated zero to 600 ft. lbs. For stationary engines and heavy machinery. Tool is $1\frac{1}{2}$ " deep, $2\frac{1}{4}$ " wide, length with handle 42", without handle 24".

TQ-602-AL Torqometer. Same as above model but with flash attachment.

0-1000 Foot Pound Model

TQ-1003-AL Torqometer. Type **B**. This powerful tool has a 1" square drive for use with Extra Heavy Duty units (pages 16, 17). Dial is calibrated from zero to 1000 ft. lbs. Flashing light attachment is incorporated in this model. Head is 2" deep, $2\frac{1}{4}$ " wide, and $25\frac{1}{4}$ " long without handle. With 48" tubular handle attached, length becomes 66 $\frac{1}{2}$ ".

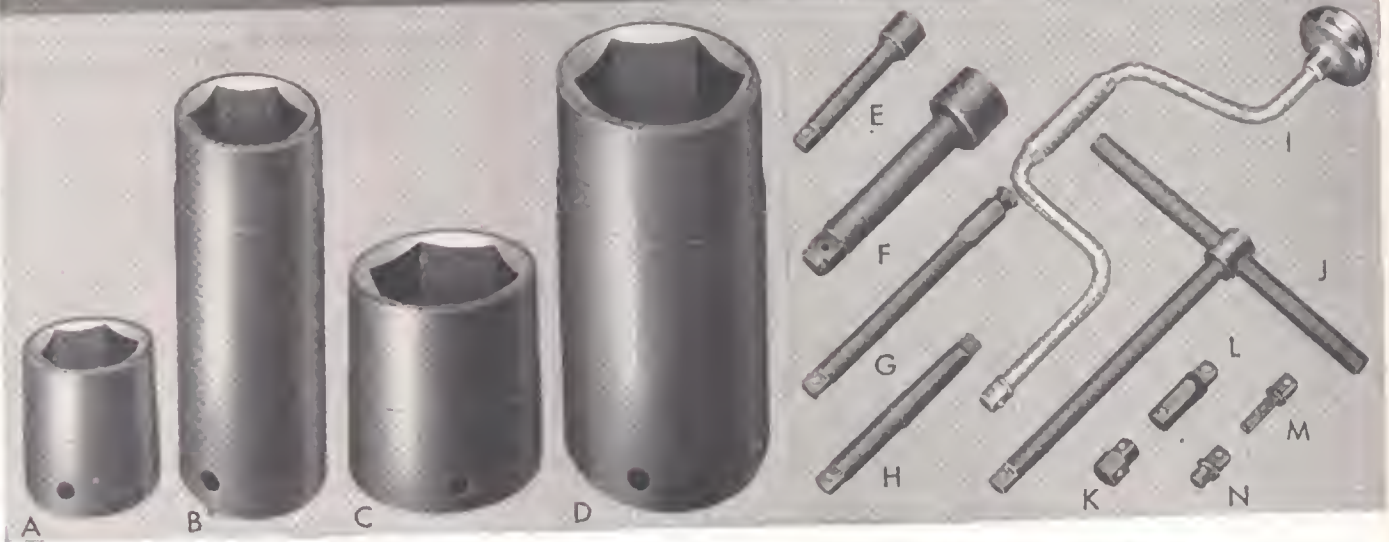
0-2000 Foot Pound Model

TQ-2003-AL Torqometer. Type **B**. Has 1" square drive to fit Extra Heavy Duty units (pages 16, 17). Large dial and flashing light signal for easy readings. Head is $2\frac{1}{4}$ " deep, $3\frac{3}{4}$ " wide. Length without handle 26 $\frac{1}{2}$ " long, with 60" handle 79" long.

0-2000 Foot Pound Model

TQ-2003-TL Torqometer. Type **B**. Built with a 1" square drive to fit Extra Heavy Duty units (pages 16, 17). A Heavy duty 2,000 Foot Pound capacity model offering adaptability, power and accuracy for all big bolt tensioning operations where working space is limited. Ideal for diesel engine maintenance, steam locomotives, turbines, big generators, and other heavy machinery. Equipped with flash signal and 4" diameter adjustable dial. Can be used either as a tee handle tool as shown or with a single handle in either position, whichever is most convenient. The two handles provided are quickly and safely locked on or removed from the unit. The head is $5\frac{1}{4}$ " deep, $4\frac{1}{4}$ " wide, overall length with both handles attached is 64".

INDUSTRIAL WRENCHES..... for use on



MASTER SERIES (1/2" Square Drive) Single Broached Hexagon Sockets

Wrench Size	Outside Diameter		STANDARD TYPE		BOLT CLEARANCE TYPE	
	Socket End	Handle End	Stock No.	Overall Length	Stock No.	Overall Length
3/8"	5/8"	7/8"	P-120	1 1/2"	SP-120	3 1/4"
7/16"	23/32"	7/8"	P-140	1 1/2"	SP-140	3 1/4"
1/2"	25/32"	15/16"	P-160	1 1/2"	SP-160	3 1/4"
9/16"	7/8"	15/16"	P-180	1 1/2"	SP-180	3 1/4"
5/8"	29/32"	1"	P-190	1 1/2"		
11/16"	31/32"	1 1/16"	P-200	1 1/2"	SP-200	3 1/4"
3/4"	1 1/16"	1 1/16"	P-220	1 1/2"	SP-220	3 1/4"
13/16"	1 1/8"	1 1/8"	P-240	1 1/2"	SP-240	3 1/4"
7/8"	1 1/4"	1 1/4"	P-250	1 1/2"		
15/16"	1 1/2"	1 1/2"	P-260	1 1/2"	SP-260	3 1/4"
1"	1 5/8"	1 5/8"	P-280	1 1/2"	SP-280	3 1/4"
1 1/16"	1 7/8"	1 7/8"	P-300-1/2	1 3/4"	SP-300-1/2	3 1/2"
1 1/8"	2"	2"	P-320-1/2	1 3/4"	SP-320-1/2	3 1/2"
1 1/4"	2 1/8"	2 1/8"	P-340-1/2	2"	.....	.....

E EXTENSION BARS

Stock No.	Square Drive	Overall Length
PS-2	1/2"	2"
PS-6	1/2"	5"
PS-12	1/2"	11 1/2"
PHD-6	1/2"	6"
PHD-12	1/2"	12"
IP-62	3/4"	7"
IP-92	3/4"	10"
IP-122	3/4"	13"
IP-63	1"	8"
IP-93	1"	11"
IP-123	1"	14"
125	1 1/4"	10"
205	1 1/4"	20"

F EXTENSION BARS Ingersoll-Rand Type

Stock No.	Square Drive	Overall Length
IR-62	3/4"	7"
IR-92	3/4"	10"
IR-122	3/4"	13"
IR-63	1"	8"
IR-93	1"	11"
IR-123	1"	14"

ADAPTORS—Not Illustrated

Stock No.	Square Male	Square Drive
PHD-1	3/8"	1/2"
PHD-2	3/8"	1/2"
IM-72	3/8"	1"
IM-124	1"	3/4"

G HEXAGON SHANKS

Stock No.	Square Drive	Size Hex End	Overall Length
A-3018	1/2"	3/8"	1 3/8"
A-3011	1/2"	3/8"	2 3/8"
A-3012	1/2"	3/8"	6"
A-3013	1/2"	3/8"	8"
A-3014	1/2"	3/8"	12"
A-3015	1/2"	3/8"	18"
A-3021	1/2"	3/8"	2 3/8"
A-3022	1/2"	3/8"	6"
A-3023	1/2"	3/8"	8"
A-3024	1/2"	3/8"	12"
A-3025	1/2"	3/8"	15"
A-3031	1/2"	3/8"	3"
A-3032	1/2"	3/8"	5"
A-3045	1/2"	3/8"	5"

H MORSE TAPER SHANKS

Stock No.	Square Drive	Morse Taper No.	Overall Length
165	1/2"	1	6"
245	1/2"	2	4"
265	1/2"	2	6"
295	1/2"	2	9"
365	1/2"	3	8"
28	3/8"	2	6"
36	3/8"	3	6"

All handles and shanks listed on this page have the standard Lock-button drive—except Ingersoll-Rand Ext. Bars. The latter have drilled hole for a locking pin and also retaining ring grooves.

HEAVY DUTY SERIES (5/8" Square Drive) Single Broached Hexagon Sockets

Wrench Size	Outside Diameter		STANDARD TYPE		BOLT CLEARANCE TYPE	
	Socket End	Handle End	Stock No.	Overall Length	Stock No.	Overall Length
9/16"	23/32"	1 1/8"	PHD-180	1 1/2"	SPHD-180	3 1/4"
5/8"	31/32"	1 1/8"	PHD-200	1 1/2"	SPHD-200	3 1/4"
11/16"	1 1/16"	1 1/8"	PHD-220	1 1/2"	SPHD-220	3 1/4"
3/4"	1 1/8"	1 1/8"	PHD-240	1 1/2"	SPHD-240	3 1/4"
13/16"	1 1/4"	1 1/8"	PHD-260	1 1/2"	SPHD-260	3 1/4"
7/8"	1 1/2"	1 1/8"	PHD-280	1 1/2"	SPHD-280	3 1/4"
15/16"	1 5/8"	1 1/8"	P-300	2"	SP-300	3 1/2"
1"	1 7/8"	1 1/8"	P-320	2"	SP-320	3 1/2"
1 1/16"	1 15/16"	1 1/8"	P-340	2"	SP-340	3 1/2"
1 1/8"	2"	1 1/8"	P-360	2"	SP-360	3 1/2"
1 1/4"	2 1/8"	1 1/8"	P-380	2"	SP-380	3 1/2"
1 1/2"	2 1/4"	1 1/8"	P-400	2"	SP-400	3 1/2"
1 3/8"	2 3/8"	1 1/8"	P-421	2"	SP-421	3 1/2"
1 7/8"	2 7/8"	1 1/8"	P-440	2 1/4"	SP-440	3 1/2"
1 5/8"	2 5/8"	1 1/8"	P-460	2 1/4"	.....	.....
1 1/2"	2 1/2"	1 1/8"	P-480	2 3/8"	.....	.....

I INDUSTRIAL TYPE SPEEDER HANDLES

Stock No.	Square Drive	Shank Length	Overall Length	Sweep
A-2001	3/4"	4 1/8"	14 1/2"	4 1/8"
A-2002	3/4"	6 1/8"	16 1/2"	4 1/8"
A-2003	3/4"	8 1/8"	18 1/2"	4 1/8"
A-2004	1"	10 1/8"	20 1/2"	4 1/8"
A-2005	1"	14 1/8"	24 1/2"	4 1/8"

J INDUSTRIAL TYPE TEE HANDLES Cross Bars Fit All Three Shanks

CROSS BARS			SHANKS		
Stock No.	Length	Diam.	Stock No.	Square Drive	Shank Length
A-1010	4"	3/8"	A-1015	3/4"	3"
A-1011	6 1/2"	3/8"	A-1016	3/4"	6"
A-1012	10"	3/8"	A-1017	3/4"	12"

K POWER ADAPTORS

Stock No.	Square Drive	Hexagon		Overall Length
		Size	Length	
A-3071	3/4"	7/8"	1 1/4"	1 1/4"
A-3072	3/4"	1"	1 1/4"	1 1/4"
A-3073	3/4"	1 1/8"	1 1/4"	1 1/4"
A-3074	3/4"	1 1/4"	1 1/4"	1 1/4"
A-3075	3/4"	1 1/2"	1 1/4"	1 1/4"
A-3091	3/4"	1 3/4"	1 1/4"	1 1/4"

POWER SHANKS

Stock No.	Square Drive	Shank Size	Overall Length
A-3028	3/4"	1 1/8" Hex.	2 1/8"
A-1534	3/4"	3/4" Square	2"
A-4003	3/4"	3/4"-20 Thread	1 1/4"
A-4245	3/4"	3/4"-16 Thread	1 1/4"

Power Nut Runners and Impact Wrenches



HEAVY DUTY SERIES INDUSTRIAL SOCKETS 3/4" Square Drive—Single Hexagon Broached

Wrench Size	Diameter		A STANDARD SERIES		B INTERMEDIATE SERIES		C DEEP SERIES	
	Socket End	Handle End	Stock No.	Overall Length	Stock No.	Overall Length	Stock No.	Overall Length
9/16"	1"	1 5/8"	IM-182	13 1/2"	SP-182	21 1/4"	SIM-182	31 1/4"
3/4"	1 1/4"	1 5/8"	IM-202	13 1/2"	SP-202	21 1/2"	SIM-202	31 1/4"
1 1/16"	1 1/2"	1 5/8"	IM-222	13 1/2"	SP-222	21 5/8"	SIM-222	31 1/4"
1 1/8"	1 3/4"	1 5/8"	IM-242	13 1/2"	SP-242	21 3/4"	SIM-242	31 1/4"
1 1/4"	1 7/8"	1 5/8"	IM-262	17 1/8"	SP-262	21 1/2"	SIM-262	31 1/4"
1 1/2"	2"	1 5/8"	IM-282	17 1/8"	SP-282	23 1/4"	SIM-282	31 1/4"
1 3/4"	2 1/4"	1 5/8"	IM-302	17 1/8"	SP-302	23 1/4"	SIM-302	31 1/4"
1 7/8"	2 1/2"	1 5/8"	IM-322	2"	SP-322	23 1/4"	SIM-322	31 1/4"
2"	2 3/4"	1 5/8"	IM-342	2"	SP-342	23 1/4"	SIM-342	31 1/4"
2 1/4"	2 7/8"	1 5/8"	IM-362	21 1/4"	SP-362	3"	SIM-362	31 1/2"
2 1/2"	3"	1 5/8"	IM-402	21 1/4"	SP-402	3"	SIM-402	31 1/2"
2 3/4"	3 1/4"	1 5/8"	IM-422	21 1/4"			SIM-422	31 1/2"
3"	3 1/2"	1 5/8"	IM-442	21 1/4"			SIM-442	31 1/2"
3 1/4"	3 3/4"	1 5/8"	IM-462	21 1/4"			SIM-462	31 1/2"
3 1/2"	3 7/8"	1 5/8"	IM-482	21 1/4"			SIM-482	31 1/2"

D UNIVERSAL JOINTS

For Use on Impact Wrenches

Stock No.	Square Drive	Outside Diam.	Overall Length
IP-8	1 1/2"	1 1/8"	2 3/8"
IPH-81	1 3/8"	1 3/8"	3 3/16"
IPH-82	1 3/4"	1 3/4"	4"
IPH-83	1 7/8"	2 1/8"	4 1/8"

SPECIAL NOTICE

We cannot show our complete line of industrial type wrenches and attachments in this catalog. Industrial users are invited to write for a copy of Snap-on's Industrial Catalog No. 50-I.

Note: The industrial tools listed on these two pages are not guaranteed against breakage or wear but are guaranteed against defects in material or workmanship.

EXTRA HEAVY DUTY INDUSTRIAL SOCKETS (1" Square Drive)—Single Hexagon

E STANDARD LENGTH SERIES

Wrench Size	Stock No.	Nose O.D.	Overall Length	Wrench Size	Stock No.	Nose O.D.	Overall Length
3/4"	IP-243	1 1/16"	21 1/16"	2 1/16"	IP-663	3"	21 1/16"
1 1/16"	IP-263	1 1/8"	21 1/8"	2 1/8"	IP-683	3 1/8"	21 1/8"
1 1/8"	IP-283	1 1/4"	21 1/4"	2 1/4"	IP-703	3 1/4"	21 1/4"
1 1/4"	IP-303	1 1/2"	21 1/2"	2 1/2"	IP-723	3 1/2"	21 1/2"
1 1/2"	IP-323	1 3/4"	21 3/4"	2 3/4"	IP-743	3 3/4"	21 3/4"
1 3/4"	IP-343	1 7/8"	21 7/8"	2 7/8"	IP-763	3 7/8"	21 7/8"
1 7/8"	IP-363	2"	21 5/8"	2 5/8"	IP-783	3 5/8"	21 5/8"
2"	IP-383	2 1/16"	21 1/16"	2 1/16"	IP-803	3 7/16"	21 3/16"
2 1/16"	IP-403	2 1/8"	21 1/8"	2 1/8"	IP-823	3 3/4"	21 3/4"
2 1/8"	IP-423	2 1/4"	21 1/4"	2 1/4"	IP-843	3 1/2"	21 1/2"
2 1/4"	IP-443	2 1/2"	21 1/2"	2 1/2"	IP-863	3 3/4"	21 3/4"
2 1/2"	IP-463	2 3/4"	21 3/4"	2 3/4"	IP-883	3 7/8"	21 7/8"
2 3/4"	IP-483	2 7/8"	21 7/8"	2 7/8"	IP-903	4"	21 7/8"
2 7/8"	IP-503	3"	21 5/8"	3"	IP-923	4 1/8"	21 5/8"
3"	IP-523	3 1/16"	21 1/16"	3 1/16"	IP-943	4 1/4"	21 1/4"
3 1/16"	IP-543	3 1/8"	21 1/8"	3 1/8"	IP-963	4 1/2"	21 1/2"
3 1/8"	IP-563	3 1/4"	21 1/4"	3 1/4"	IP-1003	4 3/4"	21 3/4"
3 1/4"	IP-583	3 1/2"	21 1/2"	3 1/2"	IP-1043	4 7/8"	21 7/8"
3 1/2"	IP-603	3 3/4"	21 3/4"	3 3/4"	IP-1123	4 3/4"	21 3/4"
3 3/4"	IP-623	3 7/8"	21 7/8"	3 7/8"	IP-1163	5"	21 3/4"
3 7/8"	IP-643	4"	21 3/8"	4"			

EXTRA DEEP SERIES—Not Illustrated

Wrench Size	Stock No.	Nose O.D.	Overall Length	Wrench Size	Stock No.	Nose O.D.	Overall Length
7/8"	SIP-283	1 1/2"	31 1/2"	1 1/16"	SIP-543	2 1/16"	31 1/2"
1 1/16"	SIP-303	1 1/8"	31 1/8"	1 1/8"	SIP-563	2 1/8"	31 1/2"
1 1/8"	SIP-323	1 1/4"	31 1/4"	1 1/4"	SIP-583	2 1/4"	31 1/2"
1 1/4"	SIP-343	1 1/2"	31 1/2"	1 1/2"	SIP-603	2 1/2"	31 1/2"
1 1/2"	SIP-363	1 3/4"	31 3/4"	1 3/4"	SIP-623	2 3/4"	31 1/2"
1 3/4"	SIP-383	1 7/8"	31 7/8"	1 7/8"	SIP-643	2 7/8"	31 1/2"
1 7/8"	SIP-403	2"	31 5/8"	2"	SIP-663	3"	31 1/2"
2"	SIP-423	2 1/16"	31 1/16"	2 1/16"	SIP-683	3 1/8"	31 1/2"
2 1/16"	SIP-443	2 1/8"	31 1/8"	2 1/8"	SIP-703	3 1/4"	31 1/2"
2 1/8"	SIP-463	2 1/4"	31 1/4"	2 1/4"	SIP-723	3 1/2"	31 1/2"
2 1/4"	SIP-483	2 1/2"	31 1/2"	2 1/2"	SIP-743	3 3/4"	31 1/2"
2 1/2"	SIP-503	2 3/4"	31 3/4"	2 3/4"	SIP-763	3 7/8"	31 1/2"
2 3/4"	SIP-523	2 7/8"	31 7/8"	2 7/8"			

JUMBO INDUSTRIAL SOCKETS

(1 1/2" Square Drive)

See listing on page 15 of this catalog

DOUBLE OFFSET BOXOCKETS



**ADAPTABLE FOR
EVERY BOXOCKET JOB**

**Powerful Leverage . . . Strength . . . Balanced Design . . .
Safety . . . Speed . . . Convenience**

The above illustration shows Boxocket wrench in use. Plenty of clearance allows mechanic to work easily and speedily.

Double Offset Boxockets

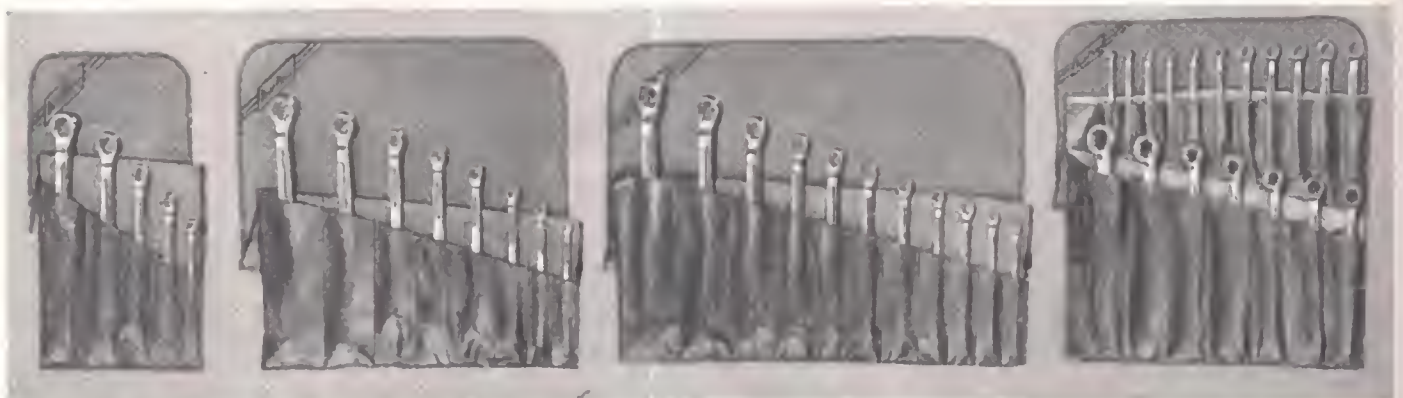
Size of Openings in Inches	Stock No.	Dia. of Head in Inches	Overall Length
$\frac{3}{8}$ & $\frac{7}{16}$	XV-1214	$\frac{9}{16}$ & $\frac{1}{2}$	7 $\frac{1}{2}$ "
$\frac{1}{2}$ & $\frac{9}{16}$	XV-1416	$\frac{1}{2}$ & $\frac{5}{8}$	8 $\frac{3}{4}$ "
$\frac{5}{8}$ & $\frac{11}{16}$	XV-1618	$\frac{5}{8}$ & $\frac{3}{4}$	8 $\frac{3}{4}$ "
$\frac{9}{16}$ & $\frac{5}{8}$	XV-1820	$\frac{11}{16}$ & $\frac{3}{4}$	9 $\frac{1}{4}$ "
$\frac{11}{16}$ & $\frac{1}{2}$	XV-1922	$\frac{3}{4}$ & $\frac{1}{2}$	9 $\frac{1}{4}$ "
$\frac{1}{2}$ & $\frac{11}{16}$	XV-2022	$\frac{1}{2}$ & $\frac{3}{4}$	10"
$\frac{5}{8}$ & $\frac{3}{4}$	XV-2024	$\frac{3}{4}$ & $\frac{1}{2}$	10 $\frac{1}{2}$ "
$\frac{11}{16}$ & $\frac{1}{2}$	XV-2226	$\frac{1}{2}$ & $\frac{3}{4}$	10 $\frac{1}{2}$ "
$\frac{3}{4}$ & $\frac{1}{2}$	XV-2428	$\frac{1}{2}$ & $\frac{3}{4}$	11"
$\frac{1}{2}$ & $\frac{11}{16}$	XV-2526	$\frac{3}{4}$ & $\frac{1}{2}$	11"
$\frac{5}{8}$ & $\frac{3}{4}$	XV-2830	$\frac{1}{2}$ & $\frac{3}{4}$	13"
$\frac{11}{16}$ & $\frac{1}{2}$	XV-3032	$\frac{3}{4}$ & $\frac{1}{2}$	14"
$\frac{1}{2}$ & $\frac{11}{16}$	XV-3236	$\frac{1}{2}$ & $\frac{3}{4}$	15"
$\frac{5}{8}$ & $\frac{3}{4}$	XV-3436	$\frac{3}{4}$ & $\frac{1}{2}$	15"
$\frac{11}{16}$ & $\frac{1}{2}$	XV-3440	$\frac{1}{2}$ & $\frac{3}{4}$	16"
$\frac{1}{2}$ & $\frac{11}{16}$	XV-3842	$\frac{3}{4}$ & $\frac{1}{2}$	17"
$\frac{5}{8}$ & $\frac{3}{4}$	XV-4044	$\frac{1}{2}$ & $\frac{3}{4}$	18"
$\frac{11}{16}$ & $\frac{1}{2}$	XV-4448	$\frac{3}{4}$ & $\frac{1}{2}$	19"
$\frac{1}{2}$ & $\frac{11}{16}$	XV-4652	$\frac{1}{2}$ & $\frac{3}{4}$	21"

These tools embody all the advantages that Boxocket construction has to offer plus the added convenience of bolt clearance. These Boxockets were designed after carefully working with mechanics who wanted offset wrenches with the highest degree of perfection, better adapted for use on modern equipment.

The deep offset heads are placed at a slight angle to the handle. This gives clearance to reach countersunk nuts, cylinder head bolts, etc., and is a real knuckle saver on tough nut turning jobs with ample direct-line leverage for a strong pull. Heads have extremely thin side walls to fit in close quarters. The double hexagon openings are machined to strict tolerances and fit bolt heads and nuts without slipping. Each Boxocket in this series provides two different wrench sizes on one handle and the complete series contains a full range of sizes from $\frac{3}{8}$ " up to and including $1\frac{1}{2}$ ". Chamfered openings help guide the wrench onto the nut or bolt head.

The new, flat handle has rounded edges to provide a firm, comfortable grip and the long length gives plenty of leverage for breaking those tough nuts loose or pulling them up tight.

Each wrench is individually drop forged from finest steel -- heat treated and tempered -- to give them toughness for long and satisfactory service. They are beauties, too, with a full polished chrome finish set off by the satin finish inserts on the handles. Add a set of these Boxockets to your kit and know real wrench convenience and adaptability.



5 Wrench Set

XV-605-K Offset Boxocket Set. Contains 5 wrenches with a range $\frac{3}{8}$ " to 1": XV-1214, XV-1618, XV-2022, XV-2428, XV-3032 in C-53A Kit Bag.

XV-605 Set. Tools only.

8 Wrench Set

XV-608-K Offset Boxocket Set. This set contains the following 8 wrenches with range from $\frac{3}{8}$ " to $1\frac{1}{4}$ "—XV-1214, XV-1618, XV-1922, XV-2024, XV-2526, XV-2830, XV-3236, XV-3440 in C-83A leatherette Kit Bag. Sixteen wrench sizes without any duplication.

XV-608 Set. Tools only.

11 Wrench Set

XV-611-K Offset Boxocket Set. Consists of the following 11 wrenches with a range from $\frac{3}{8}$ " to $1\frac{1}{4}$ "—XV-1214, XV-1416, XV-1618, XV-1820, XV-1922, XV-2024, XV-2526, XV-2428, XV-3032, XV-3236, XV-3440, in C-113A Kit Bag. Twenty-two wrench sizes with six popular sizes duplicated.

XV-611 Set. Tools only.

18 Wrench Set

XV-618-K Offset Boxocket Set. This set contains 18 wrenches with a range of $\frac{3}{8}$ " to $1\frac{1}{2}$ " in C-181A leatherette Kit Bag—XV-1214, XV-1416, XV-1618, XV-1820, XV-1922, XV-2022, XV-2024, XV-2226, XV-2428, XV-2526, XV-2830, XV-3032, XV-3236, XV-3440, XV-3842, XV-4044, XV-4448, XV-4652. Ideal for industrial maintenance departments, etc.

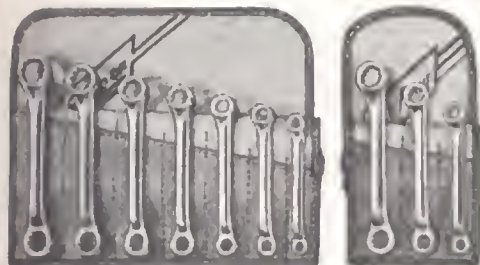
XV-618 Set. Tools only.

DWARF BOXOCKET WRENCHES

SHOWN
ACTUAL
SIZE



SHORT HANDLES FOR
WORK IN CLOSE PLACES



7 Wrench Set

XS-607-K Dwarf Boxocket Set. Contains all wrenches listed at right with openings ranging from $\frac{3}{16}$ " to $\frac{13}{16}$ " in C-74 Kit Bag.

XS-607 Set. Tools only.

3 Wrench Set

XS-603-K Dwarf Boxocket Set. Contains popular wrench sizes $\frac{3}{8}$ " to $\frac{1}{2}$ " as follows: XS-1214, XS-1618 and XS-2024 in C-33A Kit Bag.

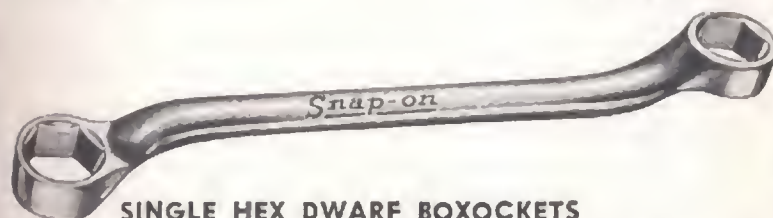
XS-603 Set. Tools only.

**Strong — Short Handles — Ample Leverage
Chamfered Openings — Accurate Broaching**

One of the most popular wrenches we have ever designed . . . handles are short enough for easy work in close places, yet give ample leverage . . . both heads are offset to clear nearby bolt heads or other obstructions . . . wrench openings are double broached for free nut turning where handle space is limited . . . each tool has two wrench sizes. These wrenches are forged from finest alloy steel, heat treated under the most modern methods to give toughness and hardness in the best combination for long satisfactory service. This is your guarantee of the finest tools of their kind ever made. Accurate broaching held to close tolerances assures you of a perfect fit on nuts or bolt heads. Ideally suited for all close quarter jobs such as

manifolds, starter, generator, water pumps, distributor mountings, universal joints, etc. A set of Dwarf Boxockets is a valuable working addition to any mechanic's tool kit. Full polished chrome finish.

Wrench Size	Stock No.	Diameter of Head	Overall Length
$\frac{5}{16}$ " & $\frac{3}{8}$ "	XS-1012	$\frac{29}{64}$ " & $\frac{17}{32}$ "	$4\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	XS-1214	$\frac{17}{32}$ " & $\frac{5}{8}$ "	$4\frac{13}{16}$ "
$\frac{1}{2}$ " & $\frac{5}{8}$ "	XS-1416	$\frac{5}{8}$ " & $\frac{47}{64}$ "	$5\frac{1}{4}$ "
$\frac{5}{8}$ " & $\frac{3}{4}$ "	XS-1618	$\frac{47}{64}$ " & $\frac{13}{16}$ "	$5\frac{1}{2}$ "
$\frac{3}{4}$ " & $\frac{7}{8}$ "	XS-1820	$\frac{13}{16}$ " & $\frac{29}{32}$ "	$5\frac{13}{16}$ "
$\frac{7}{8}$ " & $\frac{1}{2}$ "	XS-2024	$\frac{29}{32}$ " & $\frac{15}{16}$ "	$6\frac{3}{16}$ "
$\frac{11}{16}$ " & $\frac{13}{16}$ "	XS-2226	$\frac{31}{32}$ " & $\frac{13}{12}$ "	$6\frac{1}{2}$ "



SINGLE HEX DWARF BOXOCKETS

Three sizes of the popular Dwarf Boxockets described at the top of the page are now available with single hexagon broached openings for mechanics who prefer wrenches of this type. While the openings are accurately broached to fit the proper size nuts, the additional bearing surface provided by the six point openings will make them especially useful for nuts and cap screws that run undersize, are rusted on, or have corners that are battered and chewed up. Work equally well on those hard, Parker-Kalon or other self-tapping screws.

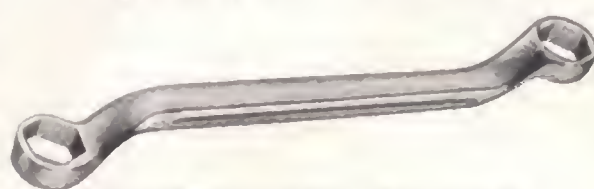
Wrench Size	Stock No.	Diameter of Head	Overall Length
$\frac{3}{16}$ " & $\frac{3}{8}$ "	XS-1012-S	$\frac{7}{16}$ " & $\frac{17}{32}$ "	$4\frac{15}{32}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	XS-1214-S	$\frac{17}{32}$ " & $\frac{5}{8}$ "	$4\frac{13}{16}$ "
$\frac{1}{2}$ " & $\frac{5}{8}$ "	XS-1416-S	$\frac{5}{8}$ " & $\frac{11}{16}$ "	$5\frac{5}{32}$ "



Single Hex Dwarf Boxocket Set

XS-603S-K Single Hex Dwarf Boxocket Set. Contains the XS-1012-S, XS-1214-S and XS-1416-S wrenches with a size range of $\frac{3}{16}$ " to $\frac{1}{2}$ " in the C-33A red leatherette kit bag. This set will prove invaluable for those jobs requiring extra turning power. The smooth, accurate openings are draw-broached. All the wrenches are expertly ground and have a full polished chrome plated finish.

XS-603S Set. Above set but tools only.



MIDGET BOXOCKET WRENCHES

These four Midget Double Offset Boxockets are especially designed for ignition and carburetor work, refrigeration, radio service, television, meter repair, and all work where tiny nuts must be turned. Both ends are offset to clear small obstructions, and the single hexagon openings are broached accurately to fit these tiny nuts perfectly. Forged from high quality alloy steel, heat treated and tempered to the exact degree necessary to assure long service life. Full polished chrome finish.

Wrench Size	Stock No.	Head Diameter	Depth of Head	Overall Length
$\frac{3}{16}$ " & $\frac{1}{8}$ "	XI-1213	$\frac{19}{64}$ " & $\frac{21}{64}$ "	$\frac{1}{8}$ " & $\frac{9}{64}$ "	$2\frac{13}{16}$ "
$\frac{1}{8}$ " & $\frac{1}{16}$ "	XI-1415	$\frac{11}{32}$ " & $\frac{23}{64}$ "	$\frac{9}{64}$ " & $\frac{5}{8}$ "	$3\frac{3}{8}$ "
$\frac{1}{4}$ " & $\frac{3}{16}$ "	XI-1618	$\frac{3}{8}$ " & $\frac{21}{64}$ "	$\frac{5}{32}$ " & $\frac{11}{64}$ "	$3\frac{3}{8}$ "
$\frac{3}{16}$ " & $\frac{1}{2}$ "	XI-2022	$\frac{13}{32}$ " & $\frac{21}{64}$ "	$\frac{11}{64}$ " & $\frac{3}{16}$ "	$3\frac{3}{4}$ "

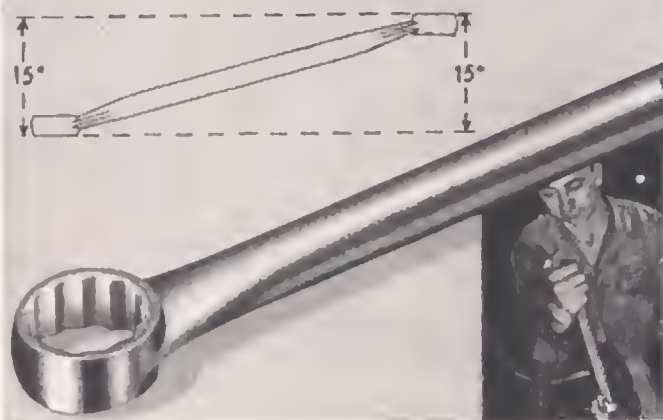


Midget Boxocket Set

XI-604-K Midget Boxocket Set. You will find a hundred uses in your work for handy tools like these. Because they are so small, the best way to keep from losing them is to buy them in this specially made C-41A Kit Bag. Many mechanics want an extra set to keep at home. This set contains one each of the following: XI-1213, XI-1415, XI-1618, XI-2022.

XI-604 Set. Tools only.

15° ANGLE BOXOCKET WRENCHES



POWERFUL LEVERAGE WITH SAFETY

Rusted-on, mud-coated parts . . . repairs and service on all kinds of machinery . . . It's all in a day's work to Snap-on's Blue-Point Boxockets. They are much stronger — and many times safer than open or adjustable wrenches. Boxockets completely encircle the nut, catch all six corners and distribute the pulling strain, combine socket wrench grip with direct leverage. Boxockets can't slip off the nut and can't spread on the nut.

The Double hexagon openings are carefully broached to close tolerances to assure a perfect fit on the nut or bolt head at all times . . . no need to worry about wrench slippage that can mean damaged parts or bruised knuckles. The heads are set at a 15° angle from the handle as shown in the diagram above, allowing the wrench to be used in many places where an offset would be awkward or impossible to operate. This 15° angle provides ample handle clearance from obstructions yet gives you the direct pulling leverage so necessary to break loose those rusted-on nuts. A light chamfer around each side of the wrench opening aids in guiding the wrench onto the nut or bolt. For greater adaptability, each Blue-Point Boxocket is designed with 2 different wrench sizes on each handle, and the complete series covers a range of sizes from $\frac{3}{8}$ " to $1\frac{1}{4}$ ". Smooth, round, easy-to-grasp handles are finished in satin chrome while the heads are highly polished.

All Blue-Point Boxockets are drop forged from finest alloy steel, expertly heat treated and carefully inspected and tested to make sure highest standards are maintained. Check your needs from the listing below or select one of the convenient sets shown at right.

Sizes and Specifications

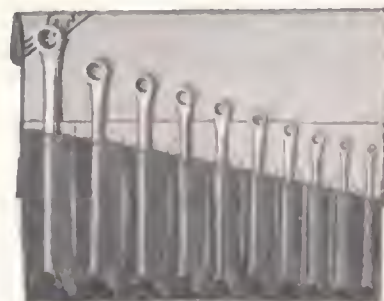
Wrench Sizes	Stock No.	Diameter of Heads	Overall Length
$\frac{3}{8}$ " & $\frac{1}{2}$ "	XD-1214	$\frac{37}{64}$ " & $\frac{43}{64}$ "	8 $\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-1416	$\frac{43}{64}$ " & $\frac{51}{64}$ "	8 $\frac{3}{4}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	XD-1618	$\frac{51}{64}$ " & $\frac{59}{64}$ "	9 $\frac{1}{8}$ "
$\frac{1}{2}$ " & $\frac{5}{8}$ "	XD-1820	$\frac{59}{64}$ " & $\frac{67}{64}$ "	9 $\frac{5}{8}$ "
$\frac{5}{8}$ " & $\frac{1}{2}$ "	XD-1922	$\frac{67}{64}$ " & $1\frac{1}{64}$ "	10"
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-2022	$\frac{67}{64}$ " & $1\frac{1}{64}$ "	10 $\frac{3}{8}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	XD-2024	$\frac{67}{64}$ " & $1\frac{1}{32}$ "	10 $\frac{7}{8}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-2526	$1\frac{1}{64}$ " & $1\frac{1}{16}$ "	11 $\frac{3}{8}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	XD-2428	$1\frac{1}{32}$ " & $1\frac{1}{16}$ "	12 $\frac{3}{8}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-2628	$1\frac{1}{16}$ " & $1\frac{1}{8}$ "	12 $\frac{1}{2}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	XD-2830	$1\frac{1}{8}$ " & $1\frac{1}{4}$ "	12 $\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-3032	$1\frac{1}{8}$ " & $1\frac{1}{2}$ "	13 $\frac{9}{16}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	XD-3436	$1\frac{1}{4}$ " & $1\frac{3}{4}$ "	15 $\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-3440	$1\frac{1}{2}$ " & $1\frac{7}{8}$ "	16 $\frac{1}{4}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	XD-3640	$1\frac{1}{2}$ " & $1\frac{7}{8}$ "	17"



6 Piece Set

XD-606-K Boxocket Set. Contains one each of the following 15° angle Boxockets listed at left. XD-1214, XD-1618, XD-1922, XD-2024, XD-2628, and XD-3032 in C-63A kit bag. This set covers the twelve most popular sizes in a $\frac{3}{8}$ " to 1" range.

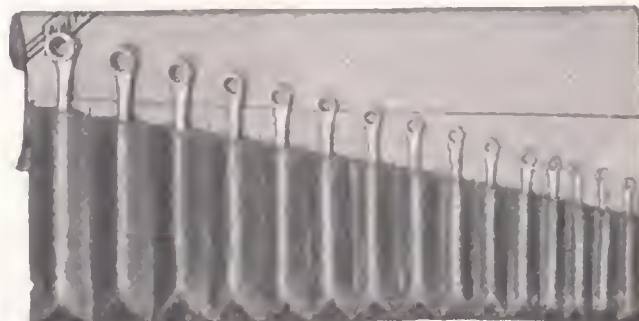
XD-606 Boxocket Set. Tools only.



10 Piece Set

XD-610-K Boxocket Set. Contains one each of the following 15° angle Boxockets listed at left. XD-1214, XD-1416, XD-1618, XD-1820, XD-1922, XD-2024, XD-2526, XD-2428, XD-3032, XD-3436. This set covers a wrench range from $\frac{3}{8}$ " to $1\frac{1}{4}$ " in the most popular sizes and will handle a great majority of everyday service work. Set comes complete in C-103A sturdy leatherette kit bag.

XD-610 Boxocket Set. Above set, tools only.



15 Piece Boxocket Wrench Set

XD-615-K Boxocket Set. This set contains one each of all fifteen of the Boxockets listed in the left-hand column and covers a range of wrench sizes from $\frac{3}{8}$ " to $1\frac{1}{4}$ ", including every standard bolt and nut size within that range.

You will find your investment paying off in easier work and time saved once you have added this complete set to your tool equipment. The set comes in a sturdy leatherette kit bag No. C-150A.

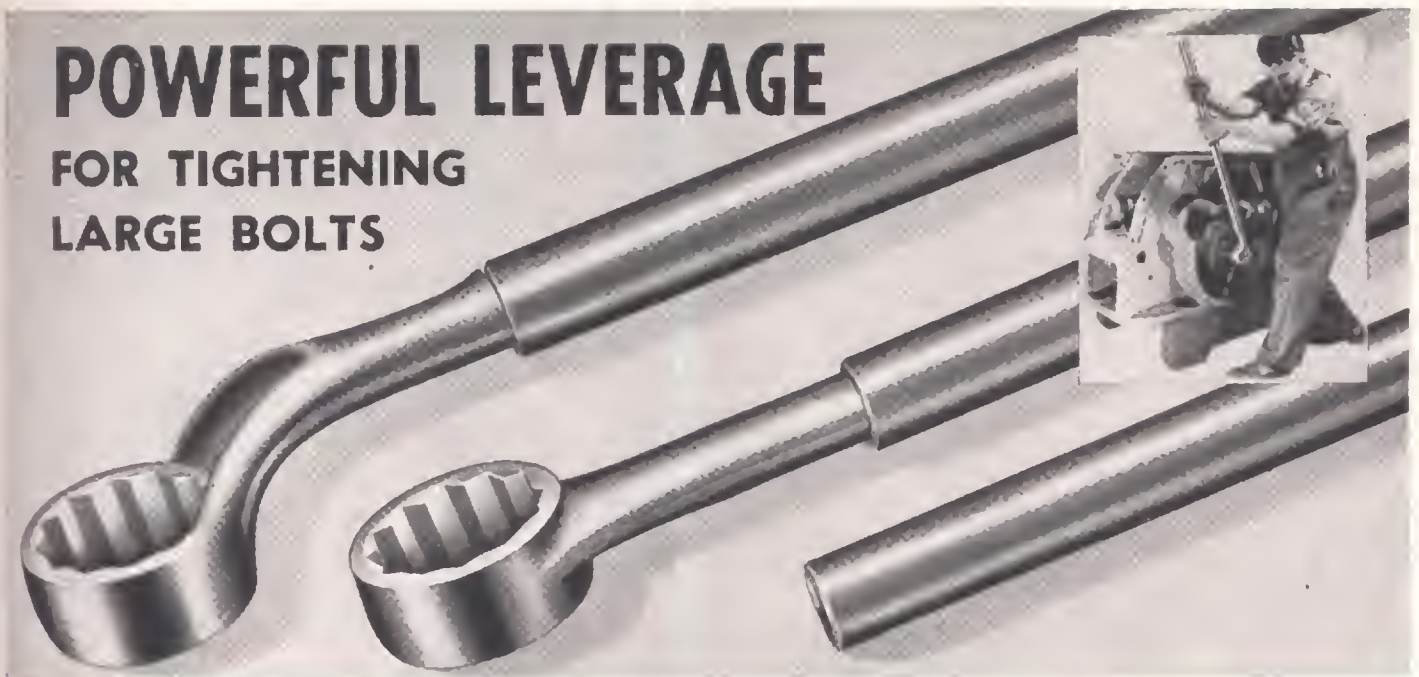
XD-615 Boxocket Set. Above set but tools only.

WHITWORTH-METRIC WRENCHES

We can supply wrenches accurately broached to Whitworth and Metric standards in full ranges of practically all of our standard socket, boxocket, combination, open-end, and tappet wrench series. If your production or service work requires Whitworth or Metric standard wrenches, write for special catalog sheets listing Snap-on's complete available Whitworth and Metric wrench line, or consult your Snap-on salesman.

POWERFUL LEVERAGE

FOR TIGHTENING LARGE BOLTS



HEAVY DUTY BOXOCKETS IN STRAIGHT AND OFFSET TYPES

Redesigned to give even greater strength than our former line of Heavy Duty Boxockets, these tools give you safe, powerful leverage to turn the tightest of those larger nuts and bolts. The Boxocket openings completely encircle the nut, eliminating the danger of the wrench slipping, so that the operator can "lay into the job" with complete confidence in his own safety.

Compact Boxocket heads reach into places where other types of wrench equipment cannot possibly be used, and the double hexagon broaching gives the advantage of a short turning arc where obstructions restrict free swinging of the wrench handle. The complete hexagon opening grips the nut or bolt head on all sides and equally distributes the applied torque to the job, thus utilizing every inch of muscular leverage to the utmost advantage.

These forty-six Boxockets are used with the five tubular handles listed. Each wrench head has a handle stop and a locking button which engages a lock hole in the handle. Once the units are locked deliberate action is necessary to unlock the combination.

Tubular Handles

These handles are made of the finest seamless steel tubing to provide the utmost strength and safety necessary for those heavy duty nut turning operations.

No.	Length	O. D.	I. D.
15	15"	1 1/8"	3/8"
18	18"	1 1/4"	7/8"
24	24"	1 1/2"	1 1/8"
30	30"	1 3/4"	1 1/4"
36	36"	1 7/8"	1 1/2"

OFFSET TYPE				STRAIGHT TYPE			
Wrench Size	Stack No.	Height of Offset	Head Thick.	Head Diam.	Assem. Length from Bolt Center	For Handle No.	Stack No.
1 1/8"	—	—	9/16"	1 1/2"	18 3/4"	15	130
1 1/4"	—	—	9/16"	1 5/8"	18 3/4"	15	132
1 1/2"	X-340	15/16"	5/8"	1 11/16"	21 3/4"	18	134
1 3/4"	X-360	1"	5/8"	1 3/4"	21 3/4"	18	136
1 7/8"	X-400	1 1/16"	1 1/8"	1 11/16"	21 3/4"	18	140
2"	X-420	1 1/8"	7/8"	2"	20 1/2"	24	142
2 1/8"	X-440	1 1/16"	7/8"	2 3/16"	20 1/2"	24	144
2 1/4"	X-460	1 1/4"	1 1/8"	2 3/16"	20 1/2"	24	146
2 3/8"	X-480	1 1/2"	1 1/8"	2 1/4"	20 1/2"	24	148
2 1/2"	X-500	1 3/16"	1 1/8"	2 1/4"	20 1/2"	24	150
2 3/4"	X-520	1 3/8"	1 1/4"	2 1/16"	20 1/2"	24	152
3"	X-540	1 7/8"	1 1/4"	2 1/2"	35 3/4"	30	154
3 1/8"	X-560	1 11/16"	1 3/8"	2 1/2"	35 3/4"	30	156
3 1/4"	X-580	1 13/16"	1 1/2"	2 1/16"	35 3/4"	30	158
3 3/8"	X-600	1 15/16"	1 3/4"	2 3/4"	35 3/4"	30	160
3 1/2"	X-640	1 7/8"	1 1/2"	2 1/2"	35 3/4"	30	164
3 3/4"	X-700	1 7/8"	1 1/2"	3 3/16"	35 3/4"	30	170
4"	X-720	1 7/8"	1 1/2"	3 1/4"	42"	36	*172
4 1/8"	X-760	2"	1 3/8"	3 1/16"	42"	36	176
4 1/4"	X-820	2 1/4"	1 1/2"	3 1/16"	42"	36	182
4 3/8"	X-840	2 1/4"	1 1/2"	3 3/4"	42"	36	184
4 1/2"	X-880	2 1/2"	1 5/8"	3 15/16"	42"	36	188
4 3/4"	X-940	2 5/8"	1 11/16"	4 3/16"	42"	36	194
5"	X-1000	2 3/4"	1 3/4"	4 1/16"	42"	36	1100

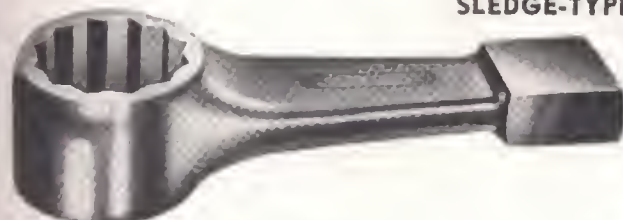
*No. X-720 Requires the No. 30 handle and No. 172 the No. 36 handle.

SLEDGE-TYPE BOXOCKET WRENCHES

These powerful wrenches are the answer to big bolt tightening problems in power plants, engineering construction work, oil fields, railroads, marine shops, etc. Hammer blow shock is distributed over the full depth of the wrench walls. These boxockets have double broached hexagon openings with extra thick walls to withstand the punishment of the sledge blows. To clear obstructions or reach "buried" nuts, certain of these wrenches can be used with companion single broached hexagon sockets listed below.

Boxocket Sizes and Specifications

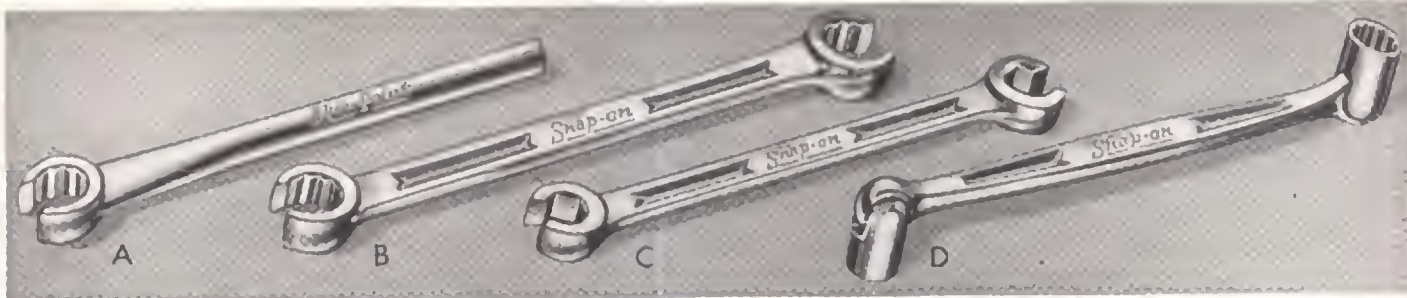
Wrench Head				Wrench Head			
Stack No.	Wrench Size	Thickness	Diameter	Stack No.	Wrench Size	Thickness	Diameter
H-640	2"	3 1/2"	3 1/4"	DX-140	1 1/2"	1"	2 3/4"
H-760	2 1/8"	3 1/2"	4 1/4"	DX-152	1 5/8"	1 1/8"	2 7/8"
H-820	2 1/4"	3 1/2"	4 1/2"	DX-154	1 11/16"	1 1/8"	2 3/4"
H-880	2 3/8"	4 1/2"	5"	DX-158	1 13/16"	1 1/4"	2 11/16"
H-940	2 1/2"	4 1/2"	5 1/4"	DX-160	1 7/8"	1 1/2"	2 11/8"
H-1000	3"	4 1/2"	5 1/2"	DX-184	2"	1 3/8"	2 11/8"
H-1120	3 1/8"	5 1/2"	6 1/4"	DX-166	2 1/4"	1 3/4"	3"
H-1240	3 1/4"	5 1/2"	6 1/2"	DX-170	2 3/8"	1 11/8"	3 1/8"
H-1360	4 1/8"	6 1/2"	7"	DX-172	2 1/2"	1 3/4"	3 1/4"
H-1480	4 3/8"	6 1/2"	7 1/4"	DX-176	2 3/4"	1 3/4"	3 1/2"
				DX-178	2 7/8"	1 3/4"	3 1/2"
				DX-182	3"	1 3/4"	3 1/2"
				DX-184	3 1/8"	1 3/4"	3 1/2"
				DX-188	3 1/4"	1 3/4"	3 1/2"
				DX-190	3 1/2"	1 3/4"	3 1/2"
				DX-194	3 3/4"	1 3/4"	3 1/2"
				DX-196	3 7/8"	1 3/4"	3 1/2"
				DX-1100	4 1/8"	2 1/4"	4 1/8"
				DX-1108	4 1/4"	2 1/4"	4 1/8"
				DX-1112	4 1/2"	2 1/4"	4 1/8"
				DX-1120	4 3/4"	2 1/4"	4 1/8"
				DX-1124	4 7/8"	2 1/4"	4 1/8"
				DX-1132	5"	2 1/4"	4 1/8"
				DX-1136	5 1/8"	2 1/4"	4 1/8"
				DX-1144	5 1/4"	2 1/4"	4 1/8"
				DX-1148	5 1/2"	2 1/4"	4 1/8"



Socket Sizes and Specifications



Special sizes of these sockets made to order: Prices of all sizes on application.



SINGLE END FLARE NUT WRENCHES

A A series of open wall Boxockets especially designed to operate over tubing and pipes in very close places. Tightening brass tube flare nuts can be done quickly and without danger of damage to the soft metal when these wrenches are used. The double hexagon broached opening is in line with the handle to assure jaws of equal strength and grips the nut on five sides to distribute the turning strain—cannot slip and chew the nut. The smooth, round handle is of adequate length to assure sufficient leverage. Refrigeration, air-conditioning, and aircraft service men will find them most useful tools to have in their kit. Full polished chrome finish.

Wrench Size	Stock No.	Head Diameter	Head Depth	Overall Length
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-12	$2\frac{1}{2}$ "	$\frac{1}{8}$ "	$6\frac{3}{8}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-14	$3\frac{1}{2}$ "	$\frac{1}{8}$ "	$6\frac{3}{8}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	RX-16	$4\frac{1}{2}$ "	$\frac{1}{8}$ "	$6\frac{3}{4}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-18	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$6\frac{3}{4}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-20	$1\frac{1}{4}$ "	$\frac{1}{8}$ "	$7\frac{1}{8}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-22	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{8}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	RX-24	$1\frac{3}{4}$ "	$\frac{1}{8}$ "	$7\frac{3}{4}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-26	$1\frac{3}{4}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-28	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{3}{4}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-30	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{3}{4}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-32	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-34	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-36	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-38	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-40	$1\frac{1}{2}$ "	$\frac{1}{8}$ "	$7\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-44	$2\frac{1}{4}$ "	$\frac{1}{8}$ "	$10\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	RX-48	$2\frac{1}{4}$ "	$\frac{1}{8}$ "	$10\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	RX-52	$2\frac{1}{4}$ "	$\frac{1}{8}$ "	$10\frac{1}{4}$ "

DOUBLE END FLARE NUT WRENCHES

These double ended flare nut wrenches have the heads set at a 10° angle to the handle to provide ample knuckle clearance yet maintain direct pulling leverage. The flat handles with their rounded edges provide a firm grip. Both wrench openings are in line with the handle to give equal strength to both jaws. The three smaller wrenches are single hex broached while the RXV-2024 and RXV-2832 have double hex openings.

Wrench Size	Stock No.	Head Diameter	Head Depth	Overall Length
$\frac{3}{16}$ " & $\frac{3}{8}$ "	C★RXV-1012-S	$\frac{3}{8}$ " & $\frac{1}{2}$ "	$\frac{1}{8}$ " & $\frac{3}{16}$ "	$5\frac{1}{16}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	C★RXV-1214-S	$\frac{1}{2}$ " & $\frac{3}{4}$ "	$\frac{1}{8}$ " & $\frac{3}{16}$ "	$6\frac{1}{4}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	E★RXV-1618-S	$\frac{3}{4}$ " & $\frac{1}{2}$ "	$\frac{1}{8}$ " & $\frac{3}{16}$ "	$7\frac{3}{8}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	E★RXV-2024	$1\frac{1}{16}$ " & $1\frac{1}{8}$ "	$\frac{1}{8}$ " & $\frac{3}{16}$ "	$8\frac{9}{16}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	E★RXV-2832	$1\frac{1}{8}$ " & $1\frac{1}{4}$ "	$\frac{1}{8}$ " & $\frac{3}{16}$ "	$9\frac{1}{16}$ "

FLEX-HEAD WRENCH

B Extremely handy wrenches for universal flange bolts, pan screws that are under cross members, and a hundred and one similar jobs. They offer the safety and power advantages of the socket wrench or Boxocket plus greater clearance advantage. With the handle in a vertical position you can spin the nut on and then flex over to a horizontal position for final tightening. Double hexagon broached openings on all sizes. Full polished chrome finish.

Wrench Size	Stock No.	Head Diameters	Overall Length
$\frac{1}{8}$ " & $\frac{3}{16}$ "	FH-1214	$\frac{3}{16}$ " & $\frac{5}{16}$ "	$6\frac{7}{32}$ "
$\frac{1}{4}$ " & $\frac{9}{16}$ "	FH-1618	$\frac{5}{16}$ " & $\frac{25}{32}$ "	$7\frac{19}{32}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	FH-2024	$\frac{7}{8}$ " & $1\frac{1}{8}$ "	$9\frac{11}{16}$ "



RATCHETING BOXOCKETS

C When working space is limited you can speed up the job with these wrenches . . . most convenient and handy for manifold nuts, exhaust flange nuts, body bolts, etc. Sturdy yet thin, they reach into extremely close spaces. Wrench openings are all double hex with the exception of the No. 74 which has single hex openings. Polished chrome finish.

RB-604A-K Set. Contains the Nos. 74, 75, 76 and 79 Ratcheting Boxockets listed below in the C-44A kit bag.

RB-604A Set. Above set but tools only.

Wrench Size	Stock No.	Thickness	Length
$\frac{3}{8}$ " & $\frac{1}{2}$ "	74	$\frac{3}{8}$ "	$5\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	75	$1\frac{1}{2}$ "	$6\frac{1}{2}$ "
$\frac{3}{4}$ " & $\frac{1}{2}$ "	76	$1\frac{1}{2}$ "	$7\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	77	$1\frac{1}{2}$ "	$7\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{1}{2}$ "	79	$\frac{1}{2}$ "	$5\frac{3}{8}$ "

LINEMAN'S RATCHET

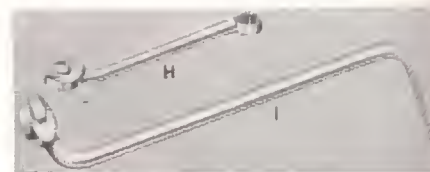
D R-1218 Lineman's Ratchet. This ratcheting Boxocket is extremely useful for linemen using Fargo and other types of cable splicing clamps. The $\frac{3}{4}$ " opening is single hex while the $\frac{1}{2}$ " opening is double hex. Head thickness $1\frac{1}{32}$ ", overall length $6\frac{1}{16}$ ".

HALF MOON BOXOCKETS

E Efficient tools for use in servicing those hidden, tough-to-get-at nuts such as starter nuts, exhaust flange nuts, etc. The curve allows you to reach around obstacles to handle these jobs easily and quickly.

CX-603 Set. Contains all three Half Moon Boxockets listed below.

Wrench Size	Stock No.	Handle Radius	Overall Length
$\frac{1}{16}$ " & $\frac{1}{2}$ "	CX-1416	$2\frac{1}{16}$ "	$5\frac{1}{2}$ "
$\frac{3}{16}$ " & $\frac{3}{8}$ "	CX-1820	$2\frac{3}{16}$ "	$6\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{3}{4}$ "	CX-2024	$3\frac{1}{16}$ "	$7\frac{1}{2}$ "



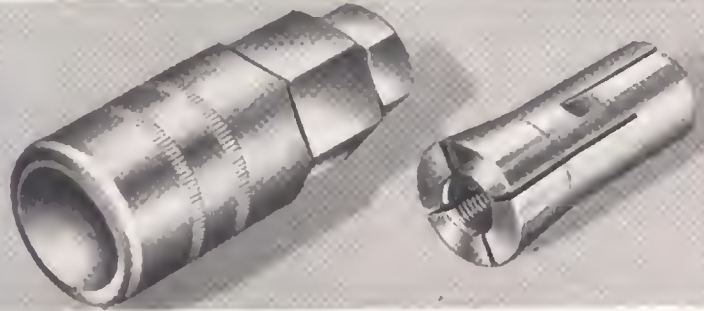
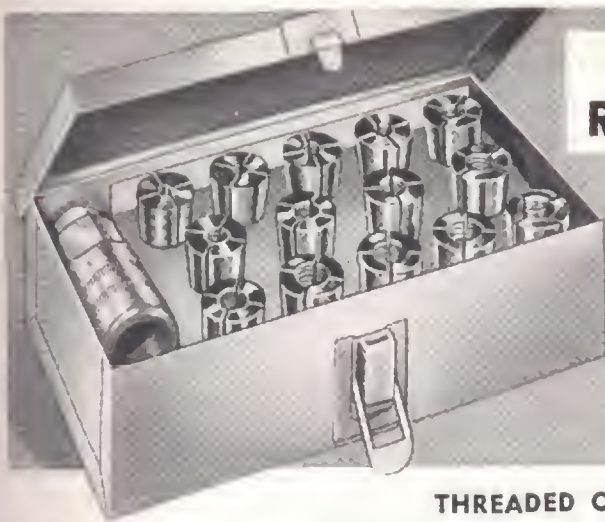
FORD DISTRIBUTOR WRENCH

H S-9096A Ford Distributor Wrench. For all V-8 Fords through 1949. Preferred by some mechanics over S-8658A (shown on page 84) for distributor nuts. Both openings $\frac{1}{2}$ ". Handle offset $1\frac{1}{2}$ ", overall length $5\frac{3}{4}$ ".

CHRYSLER CARB. WRENCH

I S-9471 Chrysler Carburetor Wrench. A specially bent $\frac{9}{16}$ " open end wrench to reach carburetor base bolts on Chrysler line cars with air conditioning heaters. Height of offset $8\frac{1}{16}$ ". Head thickness $\frac{9}{32}$ ".

STUD REMOVERS AND RESETTERS - 1/4" to 1" SIZE RANGE



THREADED COLLET-TYPE STUD PULLERS

These powerful tools are available in two different series to handle studs ranging from 1/4" to 1" in diameter. The tapered collets thread on the studs and slip into the housing of the unit. Tightening the bolt on top draws the collet into the housing, locking the puller onto the stud with a slip-proof grip. Because this powerful grip does not damage the threads in any way it is possible to reset a stud and use it over again.

The collets will work on a stud if only two or three threads are exposed or remain on the broken end. Smooth studs or dowels may be threaded with the correct size die and then removed in the usual manner. The standard size housing is 1 3/8" in diameter and can be turned with any 1 1/8" wrench. The large size housing is 2 1/8" in diameter and has a 1 3/4" hex milled on top.

Standard Puller Parts List

Stock No.	Description	Size	Stock No.	Description	Size
CG-500-2	Housing		CG-500-9	Collet	7/16"-14
CG-500-3	Collet	1/4"-20	CG-500-10	Collet	7/16"-20
CG-500-4	Collet	1/4"-28	CG-500-11	Collet	1/2"-13
CG-500-5	Collet	5/16"-18	CG-500-12	Collet	1/2"-20
CG-500-6	Collet	5/16"-24	CG-500-13	Collet	9/16"-12
CG-500-7	Collet	3/8"-16	CG-500-14	Collet	9/16"-18
CG-500-8	Collet	3/8"-24	CG-500-15	Collet	5/8"-11
			CG-500-16	Collet	5/8"-18

STANDARD SIZE PULLER SETS

CG-515-B Complete Set. Contains the CG-500-2 Housing and all 14 collets listed below at left. Has a size range of 1/4" to 5/8". Comes complete in sturdy red enameled metal box KR-150 as illustrated above.

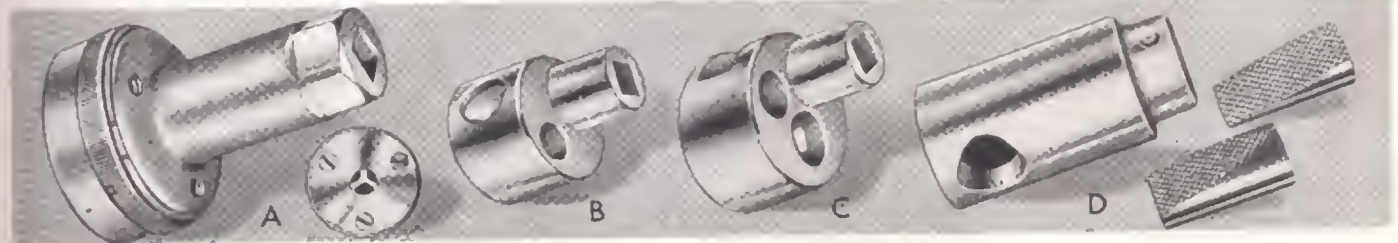
CG-500 Set. Contains the CG-500-2 Housing and the CG-500-8, CG-500-10 and CG-500-12 collets. For use on 3/8"-24, 7/16"-20 and 1/2"-20 threads.

LARGE SIZE PULLER SET

CG-505 Set. Contains the CG-505-1 Housing and the CG-505-2, CG-505-3 and CG-505-4 collets. Handles studs with 3/4"-10, 7/8"-9 and 1"-8 threads.

Large Puller Parts List

Stock No.	Description	Size
CG-505-1	Housing	
CG-505-2	Collet	3/4"-10
CG-505-3	Collet	7/8"-9
CG-505-4	Collet	1"-8
CG-505-5	Collet	3/4"-16
CG-505-6	Collet	7/8"-14
CG-505-7	Collet	1"-14



CAM AND WEDGE-TYPE STUD PULLERS

A-80A Stud Puller. A new design stud puller with a capacity of 1/4" to 1/2" . . . built in one unit . . . no collets, wedges, or other parts needed. The three jaws shown in small illustration automatically close to stud size and grip when pressure is applied. The harder you pull, the harder they grip . . . BUT they never wedge. Release the pressure and the jaws release ready for another "bite." This feature gives the A-80A a "built in" ratchet action.

Because the grip is in the exact center, you can pull a 1/2" stud with less than 1" clearance between the stud and surrounding obstructions. Just 1/2" protrusion of the stud is necessary for proper operation and no stud is too long as long studs can run out the opening on top. Can be turned with any 1/2" square drive handle or 1" wrench.

A-54 Stud Remover.* 3/16" to 1/2" capacity. Utilizes two "V" shaped racks which grip the stud as the unit is turned by means of any 1/2" square drive handle. Powerful grip releases easily when pressure is relieved. Consists of all parts listed below. *Pat. No. 2,204,852.

A-50 Stud Remover. 7/16" to 1/2" capacity. Same unit as above with A-50-3B rack only.

A-50-A Housing only. **A-50-3B** Rack 7/16" - 1/2" capacity.
A-50-B Driving Gear. **A-50-4B** Rack 7/16" - 3/8" capacity.

A-36 Stud Remover. 1/2" to 3/4" capacity. A knurled gripping wheel of special alloy steel is used to grip the stud and operates efficiently on both soft or hardened studs. The driving shank extends through both sides of the housing to provide a bearing surface on each side of the wheel and prevent binding. Two openings are provided for efficient operation over the whole size range of the tool. Can be turned with any 1/2" square drive handle. Tool consists of the three parts listed below.

A-36-A..... Stud Remover Housing only.
A-36-B..... Stud Remover Driving Shank.
A-36-C..... Stud Remover Gripping Wheel.

LA-55 Heavy Duty Stud Puller. 3/16" to 1" capacity. This puller works on the wedge principle and takes a positive grip which cannot be released except as the operator wishes. The release of the wedge is accomplished by a turn in the reverse direction.

The body of the tool is machined from an alloy steel selected for exceptional toughness and hardening qualities. Two sizes of steel wedges are included with the unit. These wedges are chapmanized to provide a tough core and extremely hard surface and are cross milled to assure a grip on the hardest studs. Use with any 3/4" square drive handle.

COMBINATION WRENCHES

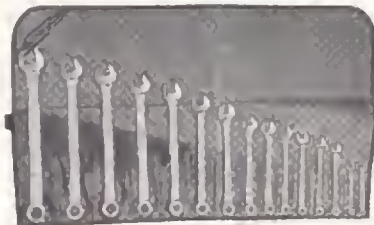


Snap-on Combination Wrenches have two types of openings, both the same size on the same wrench . . . a boxocket for breaking tight nuts loose or pulling them tighter and an open end for fast turning. Long, smooth handles provide plenty of leverage for even the toughest nut-turning jobs. The double hexagon broached Boxocket end is offset at a 15° angle to the head to clear obstructions and to provide knuckle clearance. The 15° angle open end lets you turn a nut with only 30° handle movement. Hammer forged, accurately broached, finished in polished chrome, they are the finest wrenches you can buy. Get one of the handy sets listed below.

15-Wrench Set

OEX-715-K Combination Wrench Set. So many jobs require either a boxocket or an open end wrench that we recommend this Combination set for faster, more efficient service, and maintenance. Set includes OEX-100 and OEX-120 (listed on page 45) and the thirteen sizes OEX-14 to OEX-40 listed at right, in C-151A heavy leatherette Kit Bag. Sizes range from 7/16" to 1 1/4" inclusive.

OEX-715 Set. Above set without the Kit Bag.

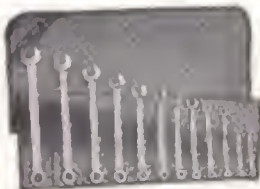


Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
7/16"	OEX-14	1 1/16"	2 3/8"	7 1/2"
1/2"	OEX-16	1 3/8"	2 5/8"	7 3/4"
9/16"	OEX-18	1 5/8"	3"	8 1/4"
5/8"	OEX-20	1 7/8"	3 1/8"	8 3/4"
11/16"	OEX-22	2"	3 1/4"	9 1/4"
3/4"	OEX-24	2 1/8"	3 3/4"	9 3/4"
13/16"	OEX-26	2 1/4"	3 7/8"	11"
7/8"	OEX-28	2 3/8"	4"	11 1/4"
15/16"	OEX-30	2 5/8"	4 1/8"	13"
1"	OEX-32	2 7/8"	4 1/4"	14"
1 1/16"	OEX-34	3"	4 3/4"	15"
1 1/8"	OEX-36	3 1/8"	5"	15 1/4"
1 1/4"	OEX-40	3 1/4"	5 1/8"	16 1/4"
1 1/2"	OEX-42	3 3/8"	5 1/4"	18"
1 3/4"	OEX-44	3 7/8"	5 3/4"	19"
1 7/8"	OEX-46	4 1/8"	6 1/4"	20 1/4"
2"	OEX-48	4 3/8"	6 3/4"	21 1/4"
2 1/8"	OEX-52	4 7/8"	7"	22 1/4"

12-Wrench Set

OEX-712-K Combination Wrench set. Contains OEX-100 and OEX-120 (listed on page 45), and OEX-14 to OEX-32 inclusive (listed above). 12 sizes in all with a range 7/16" to 1". The sizes you need most frequently in general service work. Complete with C-121A leatherette Kit Bag.

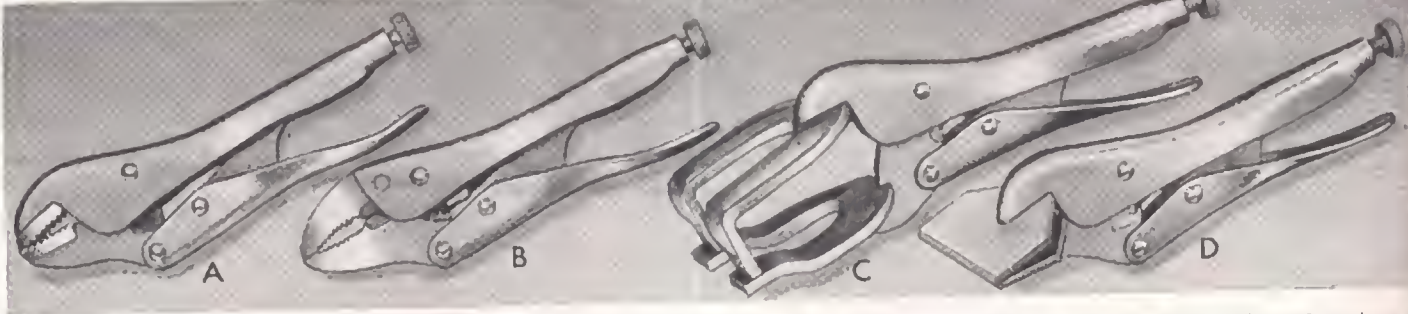
OEX-712 Set. Above set of tools without the Kit Bag.



8-Wrench Set

OEXL-708-K Combination Wrench Set. Contains OEX-14, 16, 18, 20, 22, 24, 26 and 28. A selection of 8 popular sizes 7/16" to 1 1/4". Complete in C-82A Kit Bag.

OEXL-708 Set. Above set of tools without the Kit Bag.



A Standard Vise-Grip Wrenches. Indispensable tools for all types of jobs. Double lever action locks the jaws on the work with a 1-ton pressure . . . grips all shapes and will not slip. It works in close quarters, at any angle . . . adjusts to ratchet like action. Substitutes for vise, clamp, pipe wrench or toggle press. Made of fine alloy steel, nickel plated.

GA-27 7" Vise-Grip Wrench.
GA-28 10" Vise-Grip Wrench.

B Vise-Grip with Wire Cutter. Actually 8 tools in one for it is an adjustable end wrench, thin nose plier, pipe wrench, portable toggle press, locking wrench, clamp, vise, wire and bolt cutter. TON-GRIP permits tremendous pressure on any object up to 1 1/2". Handles round work up to 1 3/8".

GA-91 7" Vise-Grip with Cutter.
GA-92 10" Vise-Grip with Cutter.

C ★GA-90 Vise-Grip Welding Clamp. With this tool parts are aligned almost instantly and held in position leaving both hands free. The special U-shaped jaws provide perfect visibility and working room. End screw provides quick jaw opening adjustment up to 15". Ideal for fender work, soldering, riveting, etc.

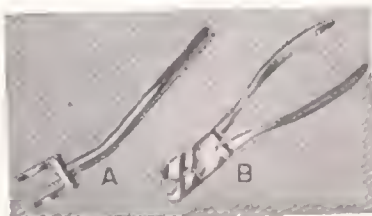
D GA-93 Vise-Grip Bending Tool. Wide jaws make this Vise-Grip ideal for sheet metal work . . . provide a solid grip for twisting, bending, shaping or pulling operations. Eliminates the tiresome "hand-gripping" necessary when ordinary pliers are used . . . clamps on to the work leaving both hands free. Also useful for upholstery work as material can be stretched with no danger of raveling. 8" long, jaws 3 3/8" wide, throat depth 1 3/4".

ADDITIONAL DOOR HANDLE TOOLS

(Added too late to be included on page 103)

A S-9048 Ford Door Handle Tool. This special forked tool is necessary for removing the off-center door handle retaining pins used on 1950 Fords. The fork is wedged between the handle and the escutcheon plate and rotated until the pin in the fork is in line with the pin in the handle. Tap the end of the S-9048 to drive the pin out. Offset handle swivels to allow the tool to be used for either right or left hand doors. Overall length 7 1/4", nickel finish.

B DHP-8 Door Handle Pliers. For removing clip-type door handle retainers used on GM cars. These pliers have thin flat jaws to slip between the escutcheon plate and the handle and are shaped to grip the clip properly for easy removal. Jaws open to handle all sizes of clips. Handles are offset to provide knuckle clearance over surrounding obstructions. Overall length 7 1/2". Get one of these pliers and be prepared to handle these jobs efficiently.





SHORT COMBINATION WRENCHES

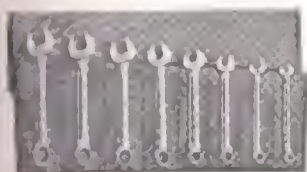
These short handle Combination Wrenches are ideal for all close quarter jobs where long wrenches cannot be used, yet where plenty of tool strength is needed. Box End and Open End are same size. Boxocket end sets at 15° angle to give knuckle clearance, Open End lays at an angle—by flopping the tool nuts can be turned with a 30° movement. Highly polished chrome finish.

Wrench Size	Stock No.	Head Dia. Box End	Head Dia. Open End	Overall Length
5/16"	OEX-100	15/32"	45/64"	5"
3/8"	OEX-120	38/64"	13/16"	5 7/8"
1/2"	OEX-140	41/64"	1 1/16"	5 7/8"
9/16"	OEX-160	23/32"	1 1/8"	5 7/8"
5/8"	OEX-180	13/16"	1 1/4"	6"
11/16"	OEX-200	57/64"	1 9/16"	6 5/16"
3/4"	OEX-220	81/64"	1 13/16"	6 19/32"
	OEX-240	1 1/16"	1 57/64"	6 5/8"

MIDGET COMBINATION WRENCHES

Drop forged from fine alloy steel, heat treated to give them extra strength. Here is greatest wrench convenience for handling those tricky and awkward little jobs where socket wrenches won't work. These small tools with Open End Wrench at one end and Boxocket on the other will speed up all those small parts jobs such as ignition, radio, dashboard work etc. Both openings on each wrench are the same size. These small wrenches are built to the most exacting standards, they are full plated and highly polished. Buy the set and be ready for those tiny jobs.

Wrench Size	Stock No.	Head Dia. Box End	Head Dia. Open End	Overall Length
1/4"	OXI-8	3/8"	17/32"	3 1/8"
5/16"	OXI-9	27/64"	19/32"	3 1/4"
3/8"	OXI-10	29/64"	21/32"	3 1/2"
7/16"	OXI-11	1 1/32"	23/32"	3 1/2"
1/2"	OXI-12	1 1/16"	3/4"	3 1/4"



8-Wrench Set

OEXS-708-K Short Handle Combination Wrench Set. Contains the following wrenches listed above: OEX-100, OEX-120, OEX-140, OEX-160, OEX-180, OEX-200, OEX-220, OEX-240. Complete in C-80A Kit Bag.

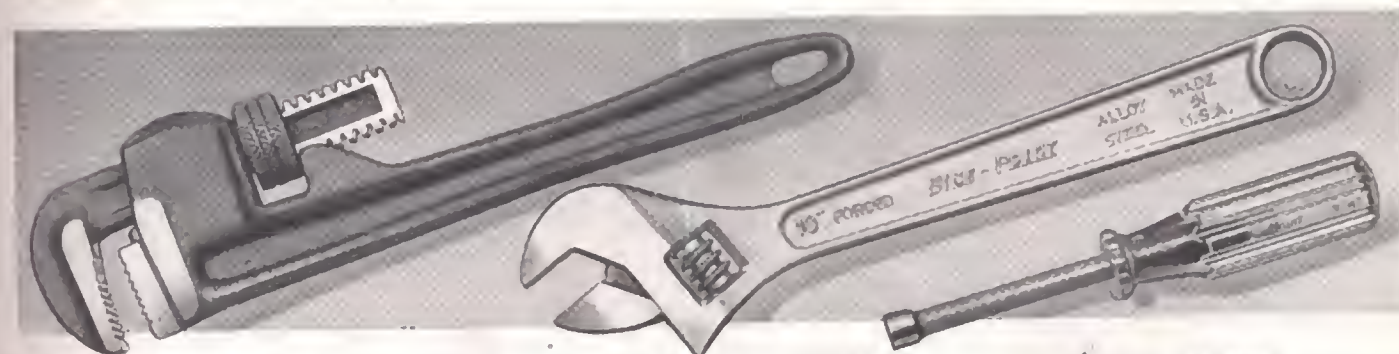
OEXS-708 Set. Above set, tools only.



5-Wrench Set

OXI-705-K Midget Combination Wrench Set. Contains the following wrenches listed above: OXI-8, OXI-9, OXI-10, OXI-11, OXI-12 in C-52A leatherette Kit Bag.

OXI-705 Set, tools only.



PIPE WRENCHES

The housing of these wrenches is guaranteed against defects in material. Powerful I-beam handle. Grip and hold perfectly under the stiffest pull, but you can't "lock" them on a pipe. Extra hard steel jaws are easily replaceable. Machine-cut teeth milled deep to grip firmly. Eyelet in handle for hanging. Forged steel housing and handle.

PW-904 Set. Contains four wrenches, PW-6, PW-8, PW-10 and PW-14.
PW-906 Set. Contains seven wrenches, PW-6, PW-8, PW-10, PW-14, PW-18 and PW-24.

No.	Size	Weight	Capacity
PW-6	6"	1 1/2 oz.	1/8"-3/4"
PW-8	8"	1 1/2 oz.	1/8"-1 1/2"
PW-10	10"	1 1/2 lbs.	1 1/4"-1 1/2"
PW-14	14"	3 lbs.	1 1/4"-2"
PW-18	18"	5 lbs.	1 1/4"-2 1/2"
PW-24	24"	8 1/4 lbs.	1 1/4"-3"
PW-36*	36"	16 1/2 lbs.	1 1/2"-4 1/2"
PW-48*	48"	29 lbs.	1 1/2"-6"

*Special order only.

ADJUSTABLE WRENCHES

Extra strong . . . extra thin jaws . . . light weight—Blue-Point Adjustable wrenches give you all three. Through the use of new alloy steels of unusual tensile strength we are able to build a wrench that for working convenience and durability cannot be beaten. The thin head gets into extremely close working places.

D-903 Set. Contains three wrenches, Nos. D-76, D-78 and D-710.

D-906 Set. Contains six wrenches, Nos. D-74, D-76, D-78, D-710, D-712 and D-715.

No.	Size	Capacity	Head Thick.	Weight
D-74	4"	1 1/2"	3/16"	2 oz.
D-76	6"	3/4"	1/8"	5 oz.
D-78	8"	1 1/8"	1/8"	8 oz.
D-710	10"	1 1/8"	3/16"	13 oz.
D-712	12"	1 1/2"	3/16"	1 1/2 lbs.
D-715	15"	1 1/2"	3/16"	3 lbs.
D-724	24"	2 1/2"	1/16"	9 lbs.

NUT DRIVERS

Blue-Point Nut Drivers are handy tools for radio, television and electrical shops and all control panel maintenance work. Their single hex openings fit like a socket wrench for a firm grip and their thin walls eliminate clearance problems.

The clear amber, plastic handles are shock-proof and the metal shank is covered in fire resistant plastic to eliminate shorting should the shank accidentally touch a nearby terminal. Hex openings are carefully machined for accurate fit and heat treated for greater strength. The shanks are hollow for 1 1/4" of their length, giving plenty of bolt clearance.

Eight sizes are available to fit nuts from 3/16" to 3/4" across flats and are available individually or in sets.

ND-60 Nut Driver Set. Contains the ND-10 through ND-18 listed below.

ND-80 Nut Driver Set. Contains all eight sizes listed below.

No.	Nut Driver	Wrench Size
ND-6	Nut Driver	3/16"
ND-8	Nut Driver	1/4"
ND-10	Nut Driver	5/16"
ND-11	Nut Driver	3/8"
ND-12	Nut Driver	7/16"
ND-14	Nut Driver	1/2"
ND-16	Nut Driver	5/8"
ND-18	Nut Driver	3/4"

***Blue-Point* OPEN END WRENCHES**

FOR STRENGTH, TOUGHNESS AND FATIGUE RESISTANCE



YOU CANNOT BUY FINER WRENCHES

The new streamlined design Blue-Point "Supreme" Open End Wrench embodies every feature that good mechanics want and demand . . . because we asked them. It was our continuous contact with the finest mechanics in America which stimulated our engineering department to design a wrench which would incorporate all the features which these mechanics said they wanted.

They were tired trying to do a job in limited space with the old-fashioned, cumbersome, bulky heads of ordinary wrenches. They wanted narrow, tapering jaws that would help them reach tight spaces. They wanted precision machined jaws and heads to provide a firm, accurate fit to nut or bolt head without the semblance of slippage. They wanted a jaw that would grip the tightest nuts and bolts and make them yield. The 15° angle opening is the most efficient ever devised, with it a hex nut can be rotated completely where wrench can

swing only 30°. They wanted placed in their hands wrenches with improvements which would help speed up every assembly and service operation. These mechanics wanted greater strength, lighter weight, balanced design and a sure grip handle. They wanted wrenches without an equal for strength, toughness and fatigue resistance.

Blue-Point "Supreme" Give You All These Features

In the new Blue-Point "Supreme" Open End Wrenches mechanics get all of these features—a wrench so good that it will outperform, outlast ordinary wrenches of comparable size and weight.

Like all Snap-on products, these wrenches are designed first to do the job better than any comparable wrench—a superior tool in every way judged by the most critical mechanics everywhere—yet we have succeeded also in improving its looks. The pear shaped heads are heavily chromed. And note the heavily chrome plated panel in the shank which makes it one of the best looking wrenches ever designed. Long thin handles with rounded edges for maximum leverage and balance.

Made From Superior Alloy Steel

Forged from the very finest alloy, high carbon steel and heat treated and tempered the exclusive Snap-on way—ruggedness and toughness are built into them in a superlative degree never found in any other wrenches at any price. Buy Blue-Point "Supreme" Open End Wrenches and you buy the finest tools of their kind—wrenches that will stand-up under all the toughest working conditions everywhere and give you years of completely satisfying service.

YOUR CHOICE OF SIX CONVENIENT KITS



6 Wrench Set

OE-806-K Set, contains the following wrenches listed above: S-1214, S-1618, S-1922, S-2024, S-2526, S-2830 in C-62A leatherette Kit Bag.

OE-806 Set. Tools only.



9 Wrench Set

OE-809A-K Set, contains following wrenches listed above: S-1214, S-1416, S-1618, S-1820, S-1922, S-2024, S-2526, S-2428, S-3032 in C-91A Kit Bag.

OE-809A Set. Wrenches only.



9 Wrench Set

OE-809-K Set, contains following wrenches listed above: S-810, S-1214, S-1618, S-1922, S-2024, S-2526, S-2830, S-3236, S-3440 in C-91A Kit Bag.

OE-809 Set. Wrenches only.



12 Wrench Set

OE-812-K Set, contains following wrenches listed above: S-810, S-1012, S-1214, S-1416, S-1618, S-1820, S-1922, S-2024, S-2526, S-2428, S-3032, S-3436 in C-122A sturdy leatherette Kit Bag.

OE-812 Set. Wrenches only.

ARE UNEQUALLED

ALL SIZES FROM 1/4" TO 1-5/8"

THESE 7 SUPERIOR QUALITIES

MAKE

Blue-Point

OPEN END WRENCHES THE BEST YOU CAN BUY

Wrench Sizes, Stock Numbers and Specifications

Wrench Sizes	Stock No.	Head Thickness	Overall Length
1/4" & 5/16"	S-810	1 1/8"	4"
5/16" & 3/8"	S-1012	1 1/4"	4 1/2"
3/8" & 1/2"	S-1214	1 1/2"	5"
1/2" & 5/8"	S-1416	1 3/4"	5 1/2"
5/8" & 3/4"	S-1618	1 7/8"	6"
3/4" & 7/8"	S-1820	2"	6 1/2"
7/8" & 1"	S-1922	2 1/4"	7"
1" & 1 1/8"	S-2022	2 1/2"	7 1/2"
1 1/8" & 1 1/4"	S-2024	2 3/4"	8"
1 1/4" & 1 1/2"	S-2224	3"	8 3/8"
1 1/2" & 1 3/4"	S-2228	3 1/4"	8 3/4"
1 3/4" & 2"	S-2428	3 1/2"	10"
2" & 2 1/4"	S-2526	3 3/4"	10 1/2"
2 1/4" & 2 1/2"	S-2830	4"	11"
2 1/2" & 2 3/4"	S-3032	4 1/4"	12 1/2"
2 3/4" & 3"	S-3236	4 1/2"	12 1/2"
3" & 3 1/4"	S-3436	4 3/4"	12 1/2"
3 1/4" & 3 1/2"	S-3440	5"	14"
3 1/2" & 3 3/4"	S-3842	5 1/4"	15 1/2"
3 3/4" & 4"	S-4044	5 1/2"	15 1/2"
4" & 4 1/4"	S-4448	6"	16 1/4"
4 1/4" & 4 1/2"	S-4652	6 1/4"	17"

Own a Set of These Wrenches

Below and on opposite page we have assembled six sets of the most popular and most often used wrenches of this type. They are available in strong leatherette kit bags as illustrated.

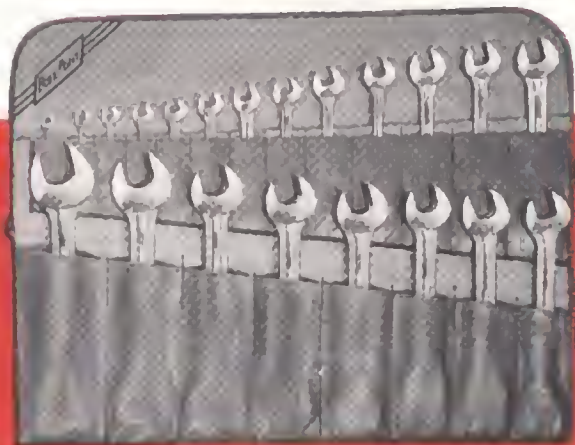
FOR EASY HANDLING



15 Wrench Set

OE-815-K Set. Fifteen of the most popular sizes, starting at 1/4" and including sizes up to 1 1/4". An excellent selection for all service work. Contains the following wrenches listed above. S-810, S-1012, S-1214, S-1416, S-1618, S-1820, S-1922, S-2024, S-2526, S-2428, S-2830, S-3032, S-3236, S-3436, S-3440 in C-152A kit bag.

OE-815 Set. Same set as above but wrenches only.



21 Wrench Set

OE-821-K Set. This complete set of Blue-Point open-end wrenches offers industrial maintenance departments the solution to a majority of their nut turning problems. A full range of wrenches from 1/4" to 1 5/8".

Contains all of the wrenches listed above except S-2228. Complete in C-210A kit bag.

OE-821 Set. Same set as above but wrenches only.

DESIGNED TO
GIVE YOU
GREATEST SPEED
AND CONVENIENCE

Blue-Point TAPPET WRENCH



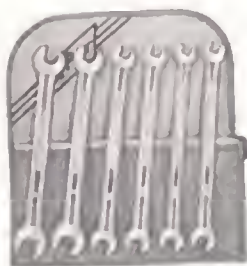
Check these Features

- ✓ Slenderized to Nth Degree.
- ✓ Disc Thin, Pear Shaped Jaws.
- ✓ Long—Slim Handles. Allow you to keep your hand clear of hot motors.
- ✓ Both heads set at an angle for better tool adaptability.

"SUPREME" . . . For Strength . . . Lightweight . . . Balance

Blue-Point "Supreme" Tappet Wrenches bring speed and convenience to your tappet adjusting operations. Check the outstanding features at left. Disc-thin, pear shaped jaws easily get into those close quarters around the tappet adjusting screws, tappets and lock nuts . . . and the long rapier-slim handles allow you to keep your hands clear of hot motors—prevent unpleasant burns. Both heads are set at an angle from the handle allowing better tool adaptability. The wrenches are extremely light and perfectly balanced . . . superiorities you will appreciate on the job when usually two wrenches are worked like scissors in one hand and a third wrench is used in the other hand. Blue-Point gives you the highest qualities of strength and durability. The high carbon, special alloy steel used especially for these tools possesses degrees of strength not obtainable in ordinary tappet wrenches. Heat-treated by most modern methods—Chrome Plated and polished for finest appearance.

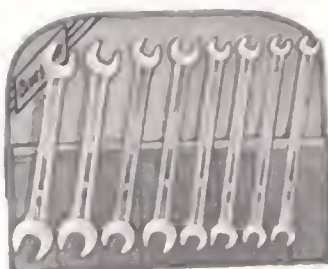
Stock Number	Wrench Sizes	Head Thickness	Overall Length
LTA-1416	$\frac{7}{16}$ " & $1\frac{1}{2}$ "	$1\frac{1}{16}$ "	9 $\frac{1}{2}$ "
LTA-1618	$1\frac{1}{2}$ " & $1\frac{1}{16}$ "	$\frac{3}{16}$ "	9 $\frac{1}{2}$ "
LTA-2022	$\frac{9}{16}$ " & $1\frac{1}{16}$ "	$\frac{3}{16}$ "	9 $\frac{1}{2}$ "
LTA-2428	$\frac{3}{4}$ " & $2\frac{1}{8}$ "	$1\frac{3}{16}$ "	9 $\frac{1}{2}$ "



LTA-806-K Blue-Point Tappet Wrench Set

Extremely handy tappet adjusting set. Set consists of six wrenches, two each of LTA-1416, LTA-1618, LTA-2022, complete in Kit Bag C-64A.

LTA-806 Above set of tappet wrenches, tools only.



LTA-808-K Blue-Point Tappet Wrench Set

Complete set of tappet wrenches for every tappet job. Set consists of 8 wrenches, two each of LTA-1416, LTA-1618, LTA-2022 and LTA-2428, complete in Kit Bag C-81A.

LTA-808 Above Set of tappet wrenches, tools only.



SINGLE END TAPPET WRENCHES

Note: The Heavy Duty tappet wrenches listed below can also be furnished on special order in $\frac{5}{16}$ " and $1\frac{1}{16}$ " sizes. Prices upon request.

Stock No.	Wrench Size	Thickness	Overall Length
XL-140	$\frac{1}{2}$ "	$\frac{1}{16}$ "	14"
XL-164	$\frac{1}{2}$ "	$\frac{1}{16}$ "	12"
XL-166	$\frac{1}{2}$ "	$\frac{1}{16}$ "	14"
XL-169	$\frac{1}{2}$ "	$\frac{1}{16}$ "	14"
XL-116	$\frac{1}{2}$ "	$\frac{1}{16}$ "	14"
XL-186	$\frac{1}{2}$ "	$\frac{1}{16}$ "	14"
XL-189	$\frac{1}{2}$ "	$\frac{1}{16}$ "	13"
XL-246	$\frac{1}{2}$ "	$\frac{1}{16}$ "	13"
XL-286	$\frac{1}{2}$ "	$\frac{1}{16}$ "	13"

A single end type of Tappet Wrench. Polished heads, satin finished with exceptionally long, flat handles to get into tight places. Drop forged tough alloy steel for extra strength and longer life. These wrenches are mighty fine for adjusting work when there are hot manifolds to work around.

No.	Opening	Head Thickness	Length
CT-12	$\frac{3}{16}$ "	$\frac{1}{16}$ "	1 $\frac{1}{2}$ "
CT-14	$\frac{3}{16}$ "	$\frac{1}{16}$ "	1 $\frac{1}{2}$ "

HANDY TAPPET TOOLS

These handy tools provide you with the convenience of that third hand you've often needed when doing tappet adjusting work. The curved jaws are slipped over the adjacent tappet with the locking jaw in position on the tappet you wish to hold. The locking pin holds the tool in position on the job. Have both sizes in your kit and enjoy real working convenience.

TA-16 Tappet Holding Wrench. Has $\frac{1}{4}$ " lock opening to handle a majority of cars.

TA-18 Tappet Holding Wrench. Has $\frac{9}{16}$ " lock opening for General Motors cars.

Snap-on ANGLE HEAD OPEN END WRENCHES



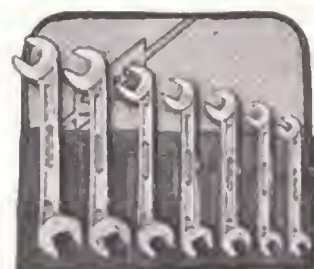
Turn nuts easier in tight quarters than
any other type of open end wrench

HEADS SET AT 30 AND 60 DEGREES TO THE WRENCH HANDLE

Both of the heads on each of these wrenches have the same size wrench opening, but one is set at a 30° angle to the handle and the other at a 60° angle. This arrangement gives you four usable wrench positions and makes it possible for you to turn nuts which are located in narrow swing areas where standard open ends or other type wrenches just won't work. Add these tools to your kit and you eliminate all your turning troubles on those hard-to-reach nuts in the $\frac{3}{8}$ " to $\frac{3}{4}$ " size range. Other features include well rounded handle edges that are comfortable in the hand... pear-shaped, thin jaws which contribute to close quarter operation... draw-broached openings which give you accurate, close

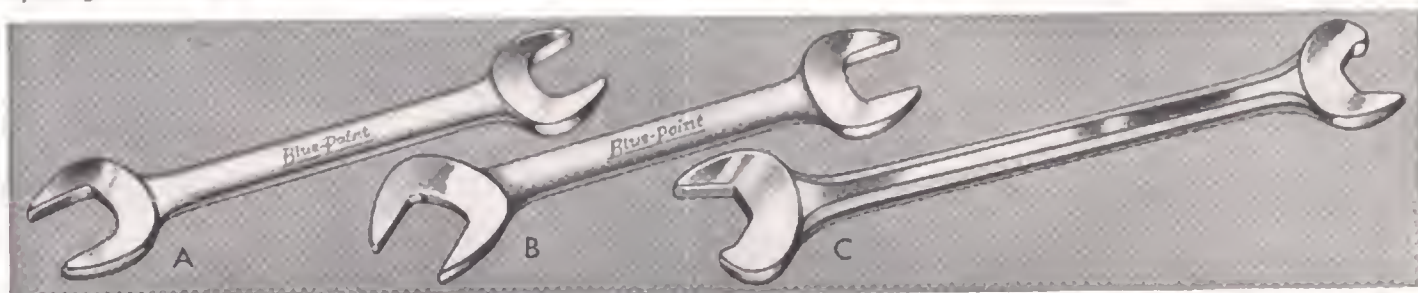
fitting wrenches... a rust-proof double plated finish of nickel and chrome over the entire tool. Hammer forged from finest alloy steel and tempered by Snap-on's traditionally fine heat treating processes to toughen and harden them from skin to core.

Stock No.	Wrench Size	Head Thickness	Overall Length
V-5212	$\frac{3}{8}$ "	$\frac{3}{16}$ "	5"
V-5214	$\frac{7}{16}$ "	$\frac{1}{32}$ "	$5\frac{1}{2}$ "
V-5216	$\frac{1}{2}$ "	$\frac{1}{32}$ "	6"
V-5218	$\frac{9}{16}$ "	$\frac{1}{4}$ "	$6\frac{1}{2}$ "
V-5220	$\frac{5}{8}$ "	$\frac{1}{4}$ "	$6\frac{1}{2}$ "
V-5222	$1\frac{1}{16}$ "	$\frac{9}{32}$ "	$7\frac{1}{2}$ "
V-5224	$\frac{3}{4}$ "	$\frac{5}{16}$ "	8"



7 Wrench Set

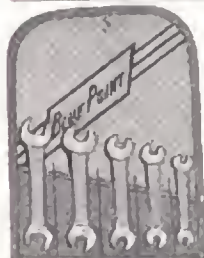
V-807-K Set. Contains one each of the wrenches listed at left. Complete in C-74 leatherette kit bag.
V-807 Set. Wrenches only.



A SHORT OPEN ENDS

These short Open End Wrenches will prove invaluable wherever nuts $\frac{3}{16}$ " to $\frac{1}{4}$ " sizes are encountered, and especially so where working space is extremely limited. Forged from a special alloy steel—they will withstand tough usage and outperform any wrench in their class. The heads are precision machined. Two sizes on each wrench. Chrome plated finish.

Wrench Size	Stock No.	Head Thickness	Length
$\frac{3}{16}$ " & $\frac{1}{8}$ "	J-1214	$\frac{1}{16}$ "	$2\frac{3}{4}$ "
$\frac{1}{4}$ " & $\frac{3}{16}$ "	J-1620	$\frac{1}{8}$ "	$3\frac{1}{4}$ "
$\frac{5}{16}$ " & $\frac{1}{2}$ "	J-2022	$\frac{1}{8}$ "	$3\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{7}{16}$ "	J-2428	$\frac{1}{4}$ "	$3\frac{3}{4}$ "
$\frac{1}{2}$ " & $\frac{9}{16}$ "	J-3236	$\frac{1}{4}$ "	$4\frac{1}{4}$ "



Short Open End Wrench Set

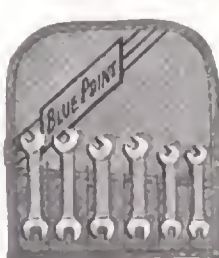
J-805-K Short Open End Set. Contains one each of the above wrenches in C-52A kit bag.

J-805 Set, tools only.

B IGNITION OPEN ENDS

Make easy work of those ignition, carburetor, radio, and electrical jobs which take tiny, short handled tools. Made in pairs with two different sizes on each wrench... each size duplicated at a different angle.

Wrench Size		Stock No.	Head Thickness	Overall Length
Straight End	Angle End			
$\frac{3}{16}$ "	$\frac{3}{16}$ "	C-1415	$\frac{1}{16}$ "	$2\frac{1}{2}$ "
$\frac{1}{4}$ "	$\frac{1}{4}$ "	C-1514	$\frac{1}{16}$ "	$2\frac{1}{2}$ "
$\frac{5}{16}$ "	$\frac{5}{16}$ "	C-1618	$\frac{1}{8}$ "	$2\frac{1}{2}$ "
$\frac{3}{8}$ "	$\frac{3}{8}$ "	C-1816	$\frac{1}{8}$ "	$2\frac{1}{2}$ "
$\frac{1}{2}$ "	$\frac{1}{2}$ "	C-1719	$\frac{1}{4}$ "	$2\frac{1}{2}$ "
$\frac{5}{8}$ "	$\frac{5}{8}$ "	C-1917	$\frac{1}{4}$ "	$2\frac{1}{2}$ "
$\frac{3}{4}$ "	$\frac{3}{4}$ "	C-2022	$\frac{1}{4}$ "	$3\frac{1}{4}$ "
$1\frac{1}{16}$ "	$1\frac{1}{16}$ "	C-2220	$\frac{1}{4}$ "	$3\frac{1}{4}$ "
$1\frac{1}{8}$ "	$1\frac{1}{8}$ "	C-2428	$\frac{1}{4}$ "	$3\frac{3}{4}$ "
$1\frac{1}{4}$ "	$1\frac{1}{4}$ "	C-2824	$\frac{1}{4}$ "	$3\frac{3}{4}$ "



Ignition Wrench Sets

C-806-K Set. Contains C-1415, C-1514, C-1618, C-1816, C-2022 and C-2220 complete in C-65A kit bag.

C-806 Set, tools only.

C-810-K Set. One each of the ten ignition wrenches listed above, in C-100A kit bag.

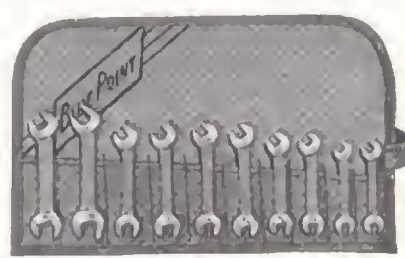
C-810 Set, tools only.

C RATCHETING OPEN ENDS

Give you ratcheting speed with open end convenience on many assembly and service operations. Runs the nut all the way down without removing the wrench from the nut. Practical time saving tools... chrome plated.

Wrench Size	Stock No.	Head Thickness	Overall Length
$\frac{3}{16}$ " & $\frac{1}{8}$ "	RS-1012	$\frac{1}{16}$ "	$4\frac{1}{2}$ "
$\frac{1}{4}$ " & $\frac{3}{16}$ "	RS-1214	$\frac{1}{8}$ "	5"
$\frac{5}{16}$ " & $\frac{1}{2}$ "	RS-1416	$\frac{1}{8}$ "	$5\frac{1}{2}$ "
$\frac{3}{8}$ " & $\frac{7}{16}$ "	RS-1618	$\frac{1}{8}$ "	6"
$\frac{1}{2}$ " & $\frac{9}{16}$ "	RS-1820	$\frac{1}{4}$ "	$6\frac{1}{2}$ "
$\frac{5}{8}$ " & $\frac{3}{4}$ "	RS-2024	$\frac{1}{4}$ "	$7\frac{1}{2}$ "
$1\frac{1}{16}$ " & $\frac{3}{4}$ "	RS-2428	$\frac{1}{4}$ "	10"

RS-804 Ratcheting Open End Wrench Set. Contains RS-1012, RS-1416, RS-1820 and RS-2428. Tools only.



Snap-on Octo-Grip TRADE MARK

Here are the finest screw drivers we have ever seen. They represent the combined skill of designers, metallurgists and fine craftsmen. Nothing finer has ever been made—they are better looking, more practical . . . longer lasting . . . that is why better mechanics are choosing Snap-on "Octo-Grips."

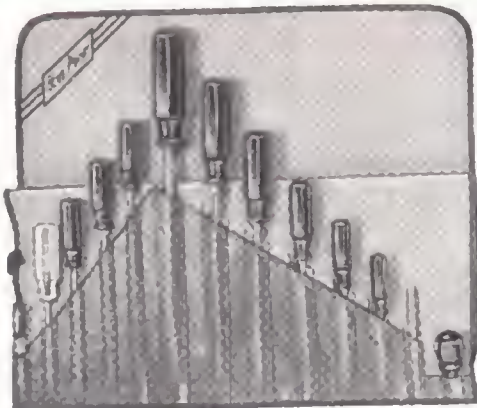
Here are reasons why you will agree they are superior.

1. Handles are made of tough black plastic . . . proved under actual working conditions to be the finest . . . They are practically unbreakable and are definitely shock-proof.
2. Blades are made of high grade alloy steel . . . entire bar is electric heat treated under precision automatic control to develop maximum combined strength and toughness.
3. Handles are 8-sided with alternate sides relieved and a rounded ridge at each corner, shape prevents rolling.
4. The shape of these handles offer a powerful turning grip without cutting into your hand.
5. Extra long wing crimping on blade shank anchors blade securely in the handle.
6. Blades have precision cross ground tips.



STANDARD TIP

OCTO-GRIP STANDARD TIP SERVICE SET



SDS-130-K Screw Driver Set. Here is a set of 13 standard tip screw drivers most needed by the average mechanic, giving him the right combination of blade length, tip and leverage for every job. The set consists of the following screw drivers: SD-1, SD-2, SD-4, SD-6, SD-8, SD-12; Cabinet screw drivers SD-143, SD-146, SD-1410; Spark Test Driver No. 145, Midget Drivers 1011 and SD-234, and Screw Starter GA-12. Complete in C-132-B Kit Bag as shown at the left.

SDS-130. Above set, tools only.

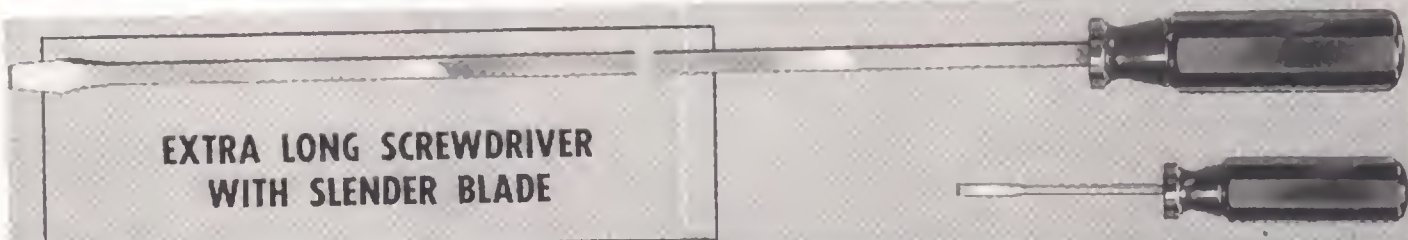
OCTO-GRIP STANDARD TIP DRIVERS

Listed below are sizes and specifications for our line of Standard Tip Octo-Grip Screw Drivers. The shockproof resilient, tough, plastic handle has extremely high dielectric resistance to insure a high factor of safety. Once you have tried an "Octo-Grip" and get the feel of this amazing handle you will never want any other drivers in your kit.

Stock No.	Blade Length	Blade Edge
SD-1	1 1/2"	1/4"
SD-2	2 1/2"	3/16"
SD-4	4"	1/4"
SD-6	6"	5/16"
SD-8	8"	3/8"
SD-12	12"	1 1/2"

SDS-60 Standard Screw Driver Set, one each of above screw drivers.

EXTRA LONG SCREWDRIVER WITH SLENDER BLADE



SPECIALLY USEFUL ON HARD TO REACH JOBS

★SD-2385 Extra Long Screw Driver. Where clearance is limited and the job is extremely difficult to reach, you will find that this extra long and slender bladed screw driver shown above is just the tool to have handy. It is ideal for working on lower radiator hose clamps on late model Ford V-8's. There are many such difficult places to reach on all cars and machinery of many kinds . . . motors, generators, diesels and many, many other places where this is the only screw driver that will reach. Although the blade is made slender purposely to get into tight places, it is forged from the finest alloy steel, then heat treated and tempered the exclusive Snap-on way to give blade resiliency and toughness to the tip. The tip is cross ground. The plastic Octo-grip handle fits the hand perfectly—is practically unbreakable and is shock proof. Overall length of the tool is 25 1/2", the length of the blade is 21 3/4", 1/4" stock, tip 5/16" x 1/32".

FOR SMALLER JOBS

SD-234 Short Screw Driver. This new Octo-Grip plastic handle, which is a non-conductor of electricity, makes this the screw driver in much demand for small electrical jobs, on car radios, motors, electrical appliances, refrigerators, and many others. Made of the finest alloy steel and tempered properly to give it just the right combination of toughness and hardness for long useful life. Here is a screw driver that will be called upon many times in the course of your work. The blade is 3" long and made of 3/4" stock. The handle is practically unbreakable. You will find it one of the handiest tools in your entire kit.



PHILLIPS TIP



CLUTCH TYPE TIP



REED & PRINCE

OCTO-GRIP PHILLIPS DRIVERS

Phillips design cross slot screws are growing in popularity. Many car manufacturers now use them on interior trim, hinges, etc. Also widely used on bus and truck bodies, furniture and many other places. Only Phillips drivers operate effectively on Phillips screws. Table on page 53 lists Phillips screws and bit sizes.

Stock No.	Overall Length	Blade Diameter	Blade Length	Phillips Bits
*SDP-22	3 1/4"	1/4"	1 1/2"	#2
*SDP-31	6"	3/16"	3"	#1
*SDP-42	7 3/4"	1/4"	4"	#2
*SDP-63	10 1/4"	5/16"	6"	#3
*SDP-64	10 13/16"	3/8"	6"	#4

★SDP-50 Phillips Screw Driver Set, one each of above screw drivers.

OCTO-GRIP CLUTCH DRIVERS

For the first time the clutch type screw drivers are now fitted with the new, improved Octo-Grip plastic handle—the handle of dense, strong, shockproof plastic complements the fine blade which is milled from the finest alloy steel, then carefully heat-treated to give exceptional tip strength.

Stock No.	Overall Length	Blade Diameter	Blade Length	Blade Tip
*SDC-4	6 7/8"	5/32"	4"	1/8"
*SDC-5	7 1/4"	5/32"	4"	5/32"
*SDC-6	7 1/4"	11/64"	4"	3/16"
*SDC-8	8 3/4"	15/64"	5"	1/4"
*SDC-10	9 1/4"	19/64"	5"	5/16"
*SDC-13	10 1/4"	13/32"	6"	15/32"

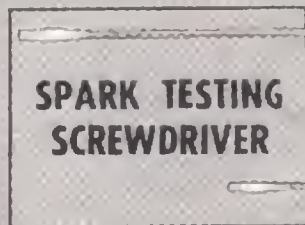
★SDC-60 Clutch-type Screw Driver Set. One each of above screw drivers.

OCTO-GRIP R. & P. DRIVERS

Among the various types of recessed head screws on the market is the Reed and Prince cross slot screw which has become very popular. Don't confuse it with the Phillips screw for there is a great difference in the slots. Compare the tips and you will see that each requires a special screw driver. Get this set so you can efficiently handle jobs using Reed and Prince screws.

Stock No.	Blade Length	Blade Tip
*SDR-1	1 1/2"	1/4"
*SDR-3	2 1/2"	3/16"
*SDR-4	4"	1/4"
*SDR-6	6"	5/16"
*SDR-8	8"	3/8"

★SDR-50 Reed and Prince Screw Driver Set. One each of above screw drivers.



OCTO-GRIP SPARK TEST SCREW DRIVERS

Put an end to guess work. The neon tube fitted into handle tells condition of plug by type of flash. Brilliant flash means good condition—a thin flash indicates too narrow a gap—no flash means a short. Slender blade and shock-proof handle make these excellent for electrical work.

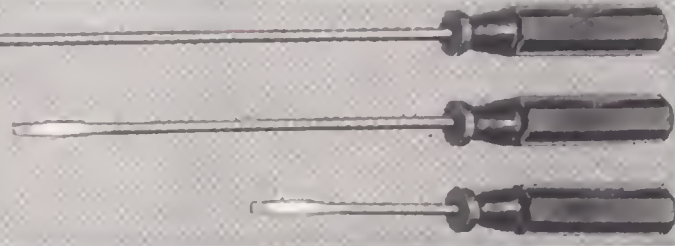
★145 Spark Testing Screw Driver. 6" blade.

★1015 Spark Testing Screw Driver. 2 1/4" blade.

No. 1015 is fitted with a pocket clip for convenient carrying like a pencil or pen.

Neon Tubes for Spark Testing Screw Drivers.

★NT-2 Replacement Tube for above. When replacing tube, save the original springs in handle, as none are included with tubes.



OCTO-GRIP CABINET SCREW DRIVERS

Now our Cabinet screw drivers are fitted with Genuine Octo-Grip Plastic handles—the kind that are practically unbreakable and are shockproof when used on electrical work. This important improvement easily makes them the outstanding screw driver in their class.

The long, thin blades are made from a special high test alloy steel, carefully heat treated to give them tough working tips and strong resilient shanks. Because of their long slender blades these screw drivers can be used on many jobs where there is little clearance and where a long reach is necessary to turn smaller types of screws. They are especially recommended for electrical and body work. The superb blade is of 3/16" hexagon stock. The well balanced blades and Octo-Grip handles look and feel like quality tools.

SD-143 Cabinet Screw Driver. 3" Blade.

SD-146 Cabinet Screw Driver. 6" Blade.

SD-1410 Cabinet Screw Driver. 10" Blade.

CDS-30 Cabinet Screw Driver Set. One each of above drivers.

Snap-on

PAR-V SCREW DRIVERS

Rid yourself of screw driver trouble . . . for a long time to come. . . at reasonable cost—with a set of Snap-on PAR-V's, built to deliver plenty of rugged service.

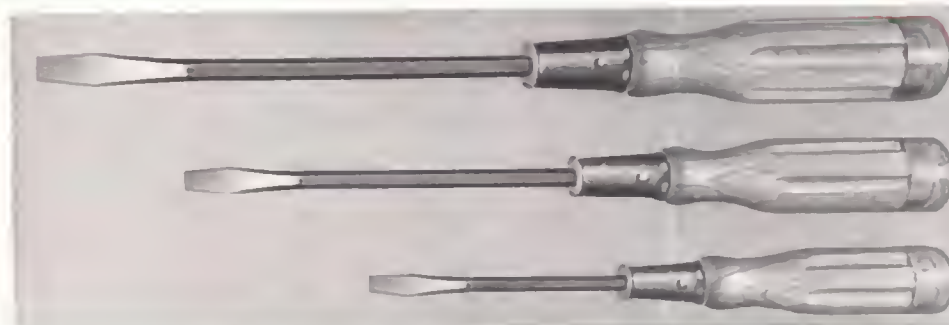
Huge quantity production has enabled us to place extremely attractive prices on this line, and at the same time give you very high grade tools. These Screw Drivers are now equipped with yellow transparent plastic Octo-Grip Handles—practically unbreakable—shockproof. They are correctly sized to and balanced perfectly with the blade and afford an excellent hand grip. Blades are made from special analysis high carbon tool steel, electrically heat treated and oil tempered to give the best combination of tip hardness and blade strength—to give long trouble-free use. Tips are correctly tapered, cross ground and machined to fit the screw head and give the greatest possible turning strength. Always use the proper size driver to protect both driver and screw head.

Extra long double wing crimping on the blade shank anchors it securely and prevents the blade from loosening or turning in the handle.

Specifications—PAR-V Screw Drivers

Stock No.	Blade Diameter	Blade Length	Tip Width	Tip Thickness
★RG-1	$\frac{1}{4}$ "	$1\frac{1}{2}$ "	$\frac{1}{4}$ "	.037"
★RG-2	$\frac{7}{32}$ "	$2\frac{1}{2}$ "	$\frac{3}{16}$ "	.032"
★RG-4	$\frac{1}{2}$ "	4"	$\frac{1}{2}$ "	.037"
★RG-6	$\frac{5}{16}$ "	6"	$\frac{5}{16}$ "	.040"
★RG-8	$\frac{3}{8}$ "	8"	$\frac{3}{8}$ "	.050"
★RG-12	$\frac{3}{8}$ "	12"	$\frac{3}{8}$ "	.050"

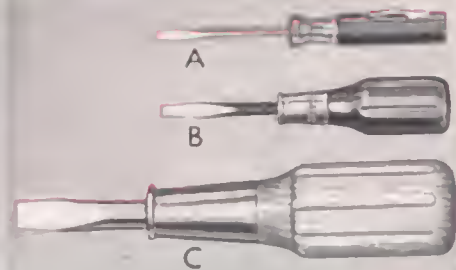
★RGS-60 Par-V Set. All six screw drivers listed above.



QUALITY WOOD HANDLE SCREW DRIVERS

Many mechanics prefer a wood handle on a screw driver, and these three tools give you the finest drivers of this type. They are exceptionally strong and durable with a blade which extends clear through the wood handle and is finished at the end of the shaft with a plastic cap. This cap protects the handle from splitting and provides a comfortable and splinter-free surface for the palm of your hand. The handles are made from selected hard wood with smoothly machined flutes of generous size to give plenty of turning power. A steel ferrule is riveted to the blade and handle to give great rigidity. The fine alloy steel octagon blades are carefully tempered to give you tough, hard shanks and bits.

TX-4 Screw Driver. 4" shank length, $\frac{3}{16}$ " wide blade tip.
 TX-6 Screw Driver. 6" shank length, $\frac{1}{4}$ " wide blade tip.
 TX-8 Screw Driver. 8" shank length, $\frac{5}{16}$ " wide blade tip.
 TXS-30 Set. Three wood handle screw drivers listed above.



SHORT SCREW DRIVERS

A good mechanic knows that he can save time, trouble and effort by using the right size screw driver for the job. These shorties will prove valuable in every man's kit.

- A ★ No. 1011 Screw Driver. 2" length blade, $\frac{1}{4}$ " wide tip. The tip is magnetized. Plastic handle is fitted with a convenient pocket clip.
- B No. 181 $\frac{1}{2}$ " Screw Driver. $1\frac{1}{2}$ " length blade, $\frac{1}{4}$ " wide tip. Wood handle. Useful for many small jobs.
- C No. 153A Screw Driver. A powerful, short bladed driver for the larger screws. $1\frac{3}{4}$ " length blade, $\frac{3}{8}$ " x $\frac{1}{16}$ " blade tip. Useful for overhead valve adjusting, drag links, etc.



HEAVY DUTY OCTO-GRIP SCREW DRIVER

No. 18-PO Heavy Duty Screw Driver. This is the most powerful screw driver in our line . . . especially useful for work around heavy machinery where slotted screw heads of $\frac{3}{8}$ " diameter or larger are encountered. Blade has a $\frac{3}{8}$ " wide tip and is made of $\frac{1}{2}$ " diameter square stock, it can be turned with a wrench to move rusted-in

screws . . . 18" blade length gives you plenty of reach and the shank is securely anchored in a large plastic handle which protects against electric shocks and affords tremendous hand leverage. Note: While this tool is big and rugged it is not a pry bar. Its blade is correctly tempered for driving big screws—not for use as a lever.

Snap-on

PHILLIPS SCREW DRIVERS

Phillips head recessed screws are now used in so many new applications that we offer a wide choice to handle these special screws. Blades are all made from best quality steel tempered to give the utmost service. Handles are from selected hardwood—smoothly finished. Blades firmly anchored and secured by heavy steel ferrule. List below shows types and sizes of Phillips screws and correct bit size for each.

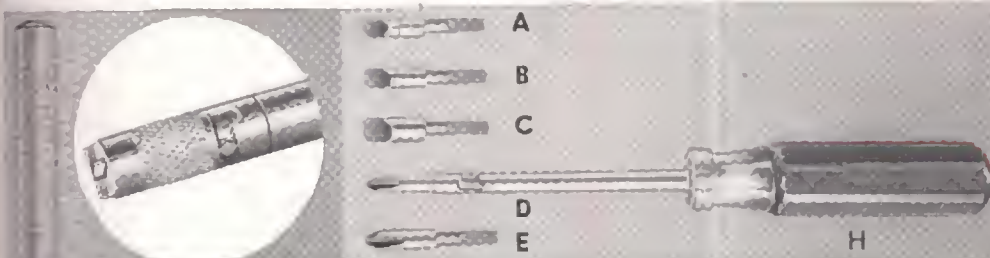
Use the Proper Size Driver for Phillips Screws

Phillips Bit No.	Machine Screw Diameters	Wood Screw Diameters	Stove Bolt Diameters	Case Hardened Sheet Metal Screw Diameters
Flat, Oval, and Fillister Heads				Flat and Oval Heads
1	#4 and Smaller	#4 and Smaller	#4 to #10	#4
2	#5 to #10 Inc.	#5 to #10 Inc.	#10 to #16	#5 to #10 Inc.
3	#12 to #16	#10 to #16 Inc.	#16 to #24	#12 to #14 Inc.
4	#18 and Larger	#18 and Larger	#24 to #36	
Round Heads				
1	#5	#4 and Smaller	#4 to #10	#4 and #5
2	#6 to #10 Inc.	#5 to #10 Inc.	#10 to #16	#6 to #12 Inc.
3	#12 to #16	#11 to #16 Inc.	#16 to #24	#14
4	#18 and Larger	#18 and Larger	#24 to #36	

Specifications—Phillips Screw Drivers

Stock No.	Length of Shank	Bit Size	Stock No.	Length of Shank	Bit Size
★STS-1	1"	1	★ST-4	4"	2
★STS-2	1 3/8"	2	★ST-6	6"	3
★ST-3	3"	1	★ST-8	8"	4

★STP-60 Phillips Set. All six screw drivers listed above.



SCREW STARTERS MAKE JOB EASY

Try this Screw Starter on just one job and you will realize why it should be in your tool kit. The end of this tool chucks tightly into the screw slot with no outside claws to interfere . . . they provide a grip that will withstand an eight pound pull and automatically release when pressure becomes too great. Light weight Duralumin Handles . . . high carbon steel gripping bits. Note: These are for starting screws only.

- ★GA-11 2 1/2" long.
- ★GA-12 5 1/4" long.
- ★GA-13 8 1/2" long.
- ★SS-30 Set. 3 Screw Starters listed above.

DETACHABLE HEAD SCREW DRIVER SET FOR PHILLIPS AND SLOTTED SCREWS

Here is a Snap-on product that is gaining in popularity—a tool that is especially useful in production work with case hardened screws—when the tool is used almost constantly—where tips are subjected to hardest use. When tip wears, no need to throw away entire screw driver—just replace the tip.

This set of 5 detachable heads and handle will service most screw driving jobs and allow you to replace broken bits at extremely low cost. Set includes No. 2 and No. 3 Phillips bits and three standard bits to fit slotted screws No. 5 and larger.

Replacement parts for the Interchangeable Screw Driver

- (A) ★GA-80-30 .030" Standard Bit.
- (B) ★GA-80-35 .035" Standard Bit.
- (C) ★GA-80-40 .040" Standard Bit.
- (D) ★GA-80-2 No. 2 Phillips Bit.
- (E) ★GA-80-3 No. 3 Phillips Bit.
- (H) GA-80-1 Octo-Grip handle only.
- ★GA-80 Interchangeable Screw Driver Set.



(Upper) ★060 Heavy Duty Offset Screw Driver for drag link and shock absorber work. 7 1/2" long. 1/2" stock, 2 3/4" blades.

(Lower) ★H-50B Hammer Head Screw Driver. Works well in tight quarters. 6" long, blades 1 1/2 x 1 1/4".



(Upper) ★050 Heavy Duty Offset Screw Driver. Useful in Ford Work. 7" long. 1/2" Stock, blades 2 3/4" thick.

(Lower) Offset Screw Drivers ★020 4" long, 1/4" stock, blades 1 1/4 x 1 1/2".

★030 5" long, 3/16" stock, blades 1 1/4 x 1 1/2".

★040 5 1/2" long, 1/8" stock, blades 1 1/4 x 1 1/2".



(Upper) ★ST-034 Phillips Offset Screw Driver. 8" long, No. 3 and No. 4 bits.

(Lower) ★ST-012 Phillips Offset Screw Driver. 6" long, No. 1 and No. 2 bits.

Blue-Point "SUPREME"

PUNCHES AND CHISELS. LAST LONGER

Blue-Point "Supreme" (Reg. U. S. Pat. off.) chisels and punches will out-cut and out-punch similar tools made from ordinary steels because the combination of metallic alloys and high carbon content in the steel we use produces qualities of amazing strength and toughness. Chisels and punches, if made too hard, will break . . . if made too soft they will flatten over. Blue-Point "Supreme" Chisels and Punches are tempered to give the best hardness and toughness for long service and all round work. No good mechanic will abuse tools of this kind and expect them to stand up. Sanded finish square handles with full rounded corners give a firm grip and solid drive. Nickel plated with polished blades. You can't buy a better tool.

GUARANTEE

Every Blue-Point Chisel and Punch is tested with rigid instructions to reject for the slightest visible defect of material or workmanship. We will replace any tool that, in the reasonable usage for which it was designed, proves defective in workmanship or material, provided that claim for replacement be made within thirty days from date of purchase. No replacement will be made of tools which have been ground or abused in any way.



Midget Punch and Chisel Set

★SVP-70-K Set. Seven midget "Supreme" quality punches and chisels. $\frac{1}{16}$ " square stock. Ideal for tiny jobs. Includes: ★SVP-402 Drift Punch 3" long, $\frac{1}{32}$ " pt.; ★SVP-403 Drift Punch 3 $\frac{1}{4}$ " long, $\frac{1}{32}$ " pt.; ★SVP-404 Center Punch 3 $\frac{1}{4}$ " long; ★SVP-405 Starter Punch 3 $\frac{1}{4}$ " long, $\frac{1}{16}$ " pt.; ★SVP-406 Cape Chisel 3 $\frac{1}{4}$ " long, $\frac{1}{16}$ " edge; ★SVP-407 Round Nose Cape Chisel 4" long, $\frac{1}{32}$ " wide; ★SVP-408 Flat Chisel 4 $\frac{1}{4}$ " long, $\frac{1}{16}$ " edge. Complete in C-72A kit bag.



Blue-Point Chisels and Punches are hammer forged at low temperature to refine the grain and preserve the carbon which gives strength and hardness to the steel. Replace old relics with these high quality tools. Square stock makes them easier to grip—prevents tools from rolling.

A Flat Chisels

Perfectly balanced. Have hand-ground cutting edges with a rounded bevel for longer edge life and faster cutting. Can be re-edged with a file quickly when necessary.

No.	Square Stock	Edge	Length
S-812	$\frac{1}{4}$ "	$\frac{1}{4}$ "	5 $\frac{1}{2}$ "
S-816	$\frac{1}{2}$ "	$\frac{1}{2}$ "	6"
S-820	$\frac{3}{4}$ "	$\frac{3}{4}$ "	6 $\frac{1}{2}$ "
S-824	1"	1"	7"
S-828	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	8"

B Cape Chisels

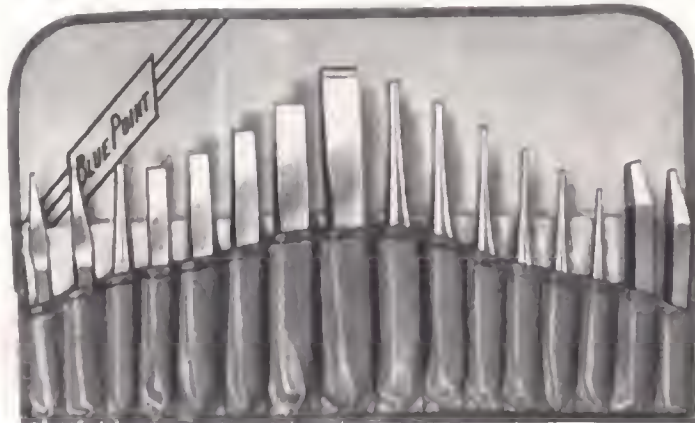
Number	Square Stock	Edge	Length
★S-13	$\frac{1}{4}$ "	$\frac{1}{4}$ "	5 $\frac{1}{2}$ "
★S-14	$\frac{1}{2}$ "	$\frac{1}{2}$ "	6"

C Round Nose Cape Chisel

Number	Square Stock	Edge	Length
★S-12	$\frac{1}{4}$ "	$\frac{1}{4}$ "	6"

D Diamond Point Chisels

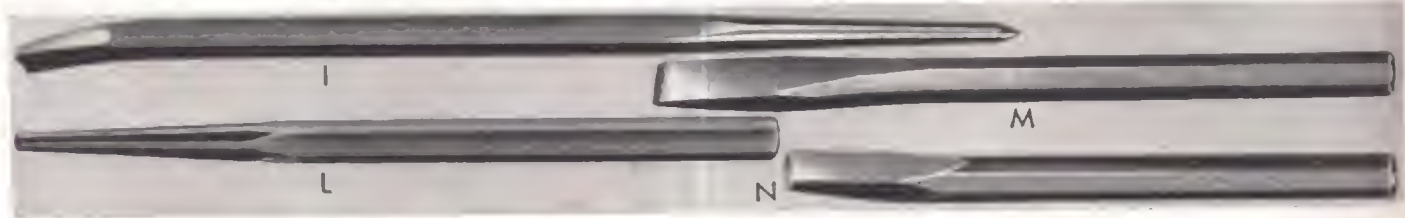
Number	Square Stock	Edge	Length
S-15	$\frac{1}{4}$ "	$\frac{1}{4}$ "	6"
S-19	$\frac{1}{2}$ "	$\frac{1}{2}$ "	5 $\frac{1}{2}$ "



"SUPREME" Chisel and Punch Set

SCP-160-K Set. The 16 tools in this "Supreme" chisel and punch set are those usually needed for general work. Consists of five chisels, S-812, S-816, S-820, S-824, S-828; and six Pin Punches S-603, S-604, S-605, S-606, S-608, S-610; two Diamond Point Chisels, S-15, S-19, S-13 Cape Chisel, S-12 Round Nose Chisel, S-4-C Center Punch. Complete in leatherette kit bag C-160A.

SCP-160 Above Set. Tools only.



JIMMY OR PINCH BARS

① Pinch Bars hammer forged from high grade alloy steel tempered for great strength. Octagon shank.

No.	Stock	Edge	Length
1112	$\frac{1}{4}$ "	$\frac{1}{4}$ "	11"
1658	$\frac{1}{2}$ "	$\frac{1}{2}$ "	16"
2434	1"	1"	21"

LONG PUNCHES

② For heavy duty work—good for industrial and farm machinery shops, etc. Hammer forged

No.	Stock	Tip	Taper	Length
1218	$\frac{1}{4}$ "	$\frac{1}{4}$ "	4"	12"
1512	$\frac{1}{2}$ "	$\frac{1}{2}$ "	5"	15"
1816	$\frac{3}{4}$ "	$\frac{3}{4}$ "	6"	18"

LP-30 Set. Above 3 tools only.

LONG FLAT CHISELS

③ Valuable wherever long reach is necessary. Hammer forged, tempered for long wear.

No.	Stock	Edge	Length
1820	$\frac{1}{4}$ "	$\frac{1}{4}$ "	18"
1824	$\frac{1}{2}$ "	$\frac{1}{2}$ "	12"
1828	$\frac{3}{4}$ "	$\frac{3}{4}$ "	10"
1832	1"	1"	14"

LFC-40 Set. Above 4 tools only.

RIVET BUSTERS

④ Use rivet busters on rivet heads and save your chisels. These tools are shaped to contact at the right point and angle to shear the heads clean off.

RB-10 Rivet Buster. 10" long, $\frac{1}{4}$ " stock, $\frac{1}{4}$ " x $\frac{1}{4}$ " edge.

RB-18 Rivet Buster. 18" long, $\frac{1}{4}$ " stock, $\frac{1}{4}$ " x $\frac{1}{4}$ " edge.



CENTER PUNCHES

[E] Forged from tough steel, heat treated and tempered for hardness.

S-3-C $\frac{5}{16}$ " Square Stock, 5" Length.
S-4-C $\frac{7}{16}$ " Square Stock, 6" Length.

DRIFT PUNCHES

[J] For finishing the job of removing pins or bolts already started with the Starter Punches. Never start a pin with a drift punch. It is not designed for such work. Use a Starter Punch to loosen the pin and finish pushing it through with a Drift Punch. The full length of shaft is the same diameter.

Stock No.	Square Stock	Point	Length
★ S-103	$\frac{3}{8}$ "	$\frac{3}{8}$ "	4 1/2"
★ S-104	$\frac{7}{16}$ "	$\frac{7}{16}$ "	4 1/2"
S-106	$\frac{1}{2}$ "	$\frac{1}{2}$ "	5"
S-108	$\frac{9}{16}$ "	$\frac{9}{16}$ "	5 1/2"
S-110	$\frac{5}{8}$ "	$\frac{5}{8}$ "	6 1/2"

STARTER PUNCHES

[G] When driving out pins, bolts, etc. always begin the job with a "Starter" punch.

Stock No.	Square Stock	Point	Length
★ S-203	$\frac{3}{8}$ "	$\frac{3}{8}$ "	5 1/2"
S-204	$\frac{7}{16}$ "	$\frac{7}{16}$ "	6 1/2"
S-206	$\frac{1}{2}$ "	$\frac{1}{2}$ "	6 1/2"
S-208	$\frac{9}{16}$ "	$\frac{9}{16}$ "	6 1/2"
S-210	$\frac{5}{8}$ "	$\frac{5}{8}$ "	6 1/2"

PIN PUNCHES

[H] Made of finest forged steel.

Stock No.	Square Stock	Point	Length
★ S-603	$\frac{3}{8}$ "	$\frac{3}{8}$ "	5"
★ S-604	$\frac{7}{16}$ "	$\frac{7}{16}$ "	5 1/2"
S-605	$\frac{1}{2}$ "	$\frac{1}{2}$ "	6"
S-606	$\frac{9}{16}$ "	$\frac{9}{16}$ "	6 1/2"
S-608	$\frac{5}{8}$ "	$\frac{5}{8}$ "	6 3/4"
S-610	$\frac{3}{4}$ "	$\frac{3}{4}$ "	7"

LONG TAPERED PUNCHES

[I] These punches are invaluable for all kinds of lining up work . . . carefully drop forged and finished to give long, lasting service. It will pay you to get the entire set.

Stock No.	Square Stock	Point	Length
S-905	$\frac{3}{8}$ "	$\frac{3}{8}$ "	8"
S-906	$\frac{7}{16}$ "	$\frac{7}{16}$ "	8 1/2"
S-910	$\frac{1}{2}$ "	$\frac{1}{2}$ "	9"
S-912	$\frac{5}{8}$ "	$\frac{5}{8}$ "	9 1/2"

LONG LINING-UP PUNCH

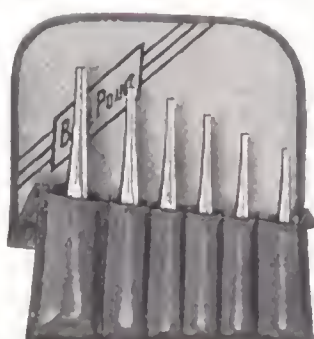
[K] ★S-714. Here is a long lining-up punch especially designed for assembly work. Body and fender mechanics will find it useful for lining up holes in fenders, frames, bodies, etc. Center point can be used for punching holes in metal. $\frac{9}{16}$ " Square stock, $\frac{5}{16}$ " point, 91 1/2" length of Taper, 14" overall length.



Flat Chisel Set

SC-50-K Set consists of five chisels; S-812, S-816, S-820, S-824, S-828, in C-50-A Kit Bag.

SC-50 Set. Tools only.



Pin Punch Set

SP-60-K Set consists of following six punches; S-603, S-604, S-605, S-606, S-608, S-610 complete in sturdy leatherette C-60-A Kit Bag.

SP-60 Set. Tools only.



Long Tapered Punch Set

SLTP-40-K Set. Consists of four punches — S-905, S-906, S-910, S-912 in C-42-A Kit Bag.

SLTP-40 Set. Tools only.



Starter and Drift Punch Set

SSD-100-K Set. Consists of 10 tools; five starter punches; S-203, S-204, S-206, S-208, S-210; five Drift Punches S-103, S-104, S-106, S-108, S-110, in C-104-A Kit Bag.

SSD-100 Set. Tools only.



BLUE-POINT PRY BARS

[O] Rolling head exerts tremendous leverage for prying work . . . often used for prying out gears, etc. Point useful for lining-up work. Hammer forged from fine alloy steel.

1250 Pry Bar. 12" long, $\frac{7}{16}$ " stock.

1650 Pry Bar. 16" long, $\frac{9}{16}$ " stock.

2050 Pry Bar. 20" long, $\frac{1 1}{16}$ " stock.

COTTER PIN TOOL

[P] ★S-6P Cotter Pin Tool. An excellent tool for spreading and removing cotter pins . . . can also be used to great advantage for inserting water pump packings, etc. Hammer forged from "Supreme" chisel steel with square bevel shank for easy handling and firm grip. Overall length 6", $\frac{5}{16}$ " stock.

COTTER PIN PULLER

[Q] ★S-9094-A Cotter Pin Puller. Will pull every pin no matter how tight it is. Insert hook end into cotter pin. Hit anvil end sharply, out comes pin. Hook is of tough steel pinned in place and can be replaced easily. Overall length is 10".

★S-9094-A2X Hook and rivet Set.

BUSHING CUTTER

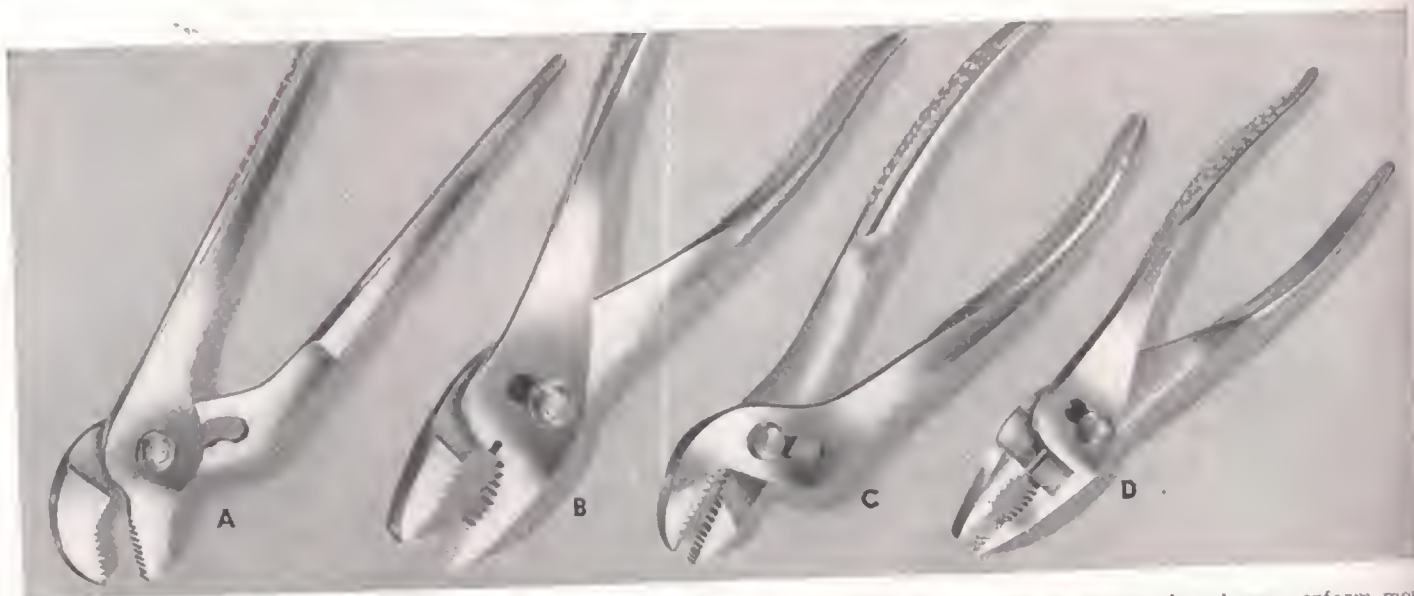
[R] ★GA-1 Bushing Cutter. For splitting soft metal bushings in housings, steering sectors, spindles, pistons, connecting rods, etc., or cutting exhaust pipes and muffler sleeves, body panels, etc. $\frac{3}{8}$ " Octagon stock, 7 1/4" long, $\frac{1}{16}$ " bit width. Curved bit pushes the cut material away from the work.

WHY... Vacuum Grip PLIERS

an exclusive **Snap-on** product

WILL OUTLAST SEVERAL PAIRS OF ORDINARY PLIERS

- 1 Hammer forged from special high carbon Silico-Molybdenum alloy tool steel.
- 2 Hardened with liquid heat and oil tempered clear through—not surface hardening only. Joints locally tempered electrically.
- 3 Scientific design which distributes the strain over entire tool—assuring maximum strength.
- 4 Light in weight—perfectly balanced—not head heavy. Less fatiguing to use.
- 5 Smooth, perfectly matched, easy riding precision machined joints.
- 6 Sharp, deep milled teeth given intense gripping power with minimum handle pressure.
- 7 Hand filed, perfectly aligned and sharpened cutters on all cutter patterns.
- 8 Spring tempered Vacuum-Grip 'Non-Slip' handles.
- 9 Highest quality throughout, Vacuum-Grip pliers are masterpieces of the toolmaker's craft.



A No. 9-A 9" Gripping or Water Pump Pliers. A gripping pliers especially suitable for tightening water pump packing nuts on older cars or for jobs such as turning any shaped nut, bolt, rod, etc. The thin jaws make it useful for many other jobs and make it desirable as a general utility pliers. The slip-joint design permits four jaw adjustments to give an approximately parallel working position to the jaws up to $1\frac{1}{4}$ " opening. Four spacer holes give quick non-slip adjustment. Handles are designed for comfortable grip. Teeth are set at a backward angle to grip rods, etc., lets you work in cramped places with short strokes. The head is set at a 45° angle for easy action in otherwise inaccessible places. Full nickel finish.

B Heavy Duty Pliers. Giants for gripping—general use pliers with 2-position slip-joints . . . notched type of wire cutters . . . full fashioned handles. There are many places where pliers of this type are time and labor savers and a set should be in every mechanics kit. Full nickel finish.

No. 46 6" Heavy Duty Pliers.

No. 47 7" Heavy Duty Pliers.

No. 49 9" Heavy Duty Pliers.

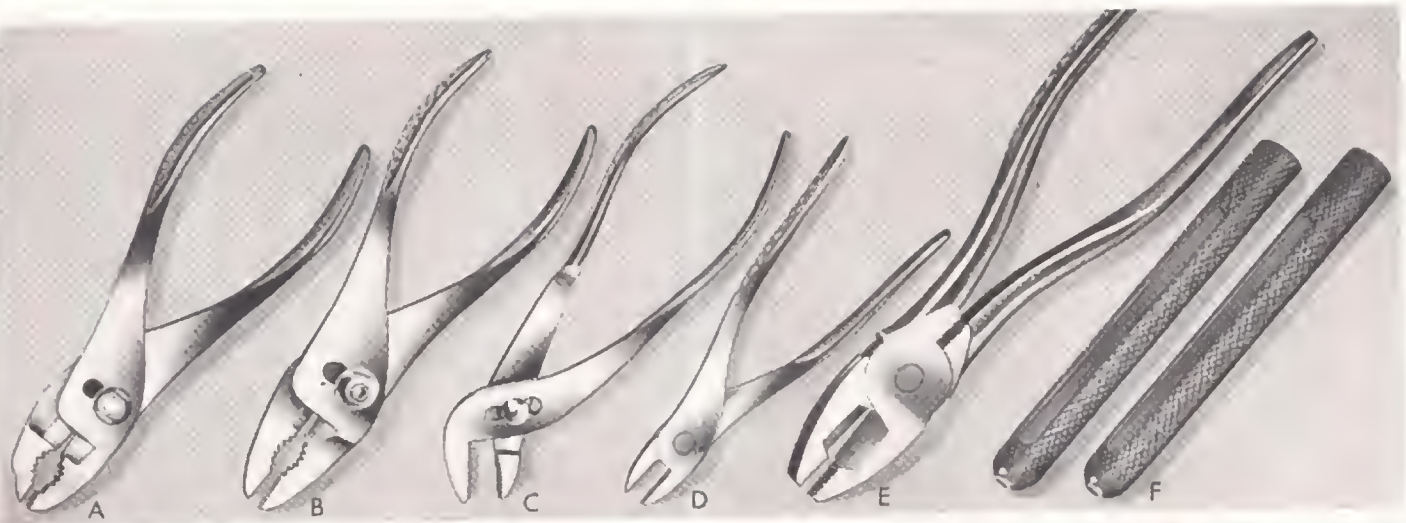
C Heavy Duty Gripping Pliers. For general purpose work where plenty of gripping power and great leverage is required these pliers just fit the bill. For general service work this plier has

greatest appeal and can perform more jobs effectively than any other type. The sturdy jaws grip on like a pipe wrench and are set at an angle for easy operation in close places. 3-position adjustable slide joint adapts them to different sizes of work. Full nickel finish.

No. 61 6" H. D. Gripping Pliers.

No. 62 8" H. D. Gripping Pliers.

D No. 137 7" Heavy Duty Combination Pliers. A popular favorite with automotive mechanics, combining powerful cutters with tremendous gripping strength . . . has a cutting capacity equal to lineman pliers. Non-slip, full fashioned handles. Full nickel finish.



[K] Combination Pliers. Excellent all-round general use cutting and gripping pliers which give you the working convenience of having powerful gripping jaws in combination with lineman-type cutters. Cutter edges are hand filed to assure perfect blade alignment. Sturdy bow handles afford powerful gripping and cutting leverage. Joint is the 2-position type. Full nickel finish.

No. 34 4½" Combination Pliers.
No. 35 5" Combination Pliers.
No. 36 6" Combination Pliers.

[L] No. 105 5" Ignition Pliers. Midget Pliers with standard 3-position adjustable slip-joint. It's a dandy for servicing carburetor, ignition, radio, and other small jobs. Full nickel finish.

[M] No. 65 5" Light Weight Grippers. An exclusive Vacuum Grip design for general use . . . popular with flyers and airplane mechanics because of its slender design. Light in weight but built for Heavy Duty work . . . capacity far exceeds its size . . . Long thin pointed nose . . . powerful wire cutters . . . 2-position slip-joint. Nickel finish.

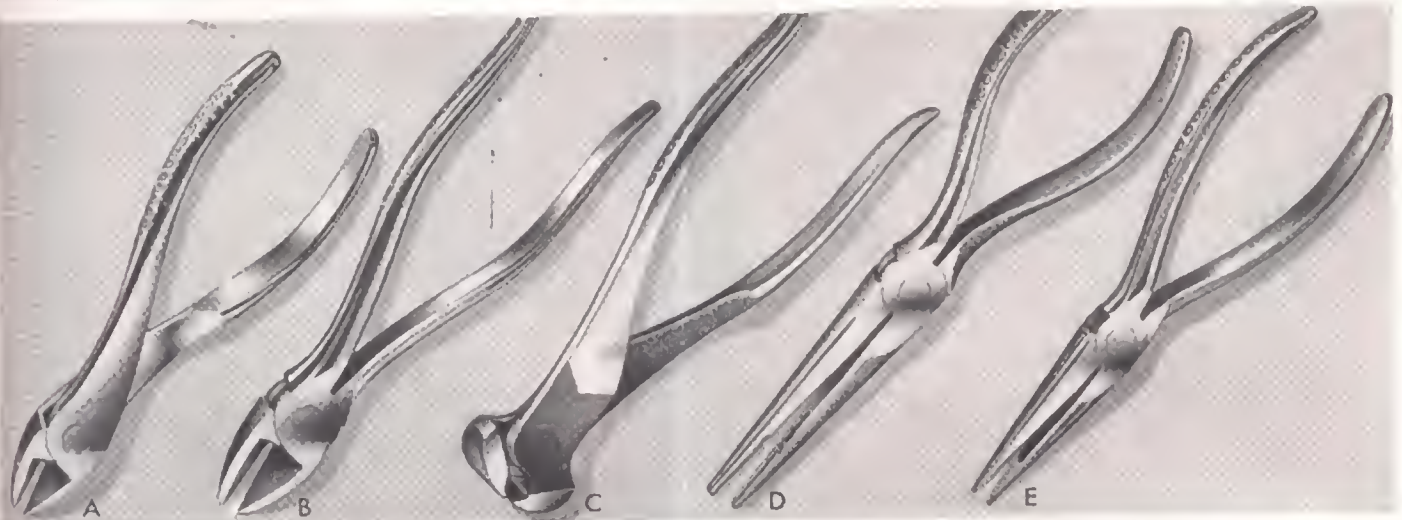
[N] Insulating Handle Grips. Any 7" or 8" plier can be safely used to service electrically operated equipment when fitted with these plastic insulating grips. Easily attached to any shape handle. Have high di-electric strength and are shockproof to the average voltage encountered by lineman. Bright red.

PG-7B Pair of 7" Plastic Grips.
PG-8B Pair of 8" Plastic Grips.

[O] No. 5 4⅝" Midget Pliers. A useful little pair of pliers that can be used to excellent advantage on all extremely small work, radio, electrical, small bench jobs, etc. Has full fashioned handles. Full nickel finish.

[P] Linemon Pliers. Powerfully built tools for gripping, twisting, hammering, and cutting . . . hammer forged from finest alloy tool steel . . . hardened in liquid heat process . . . tempered in oil and subjected to a separate local electric tempering operation applied to the joints. Wire insulation stripper in handles. High steel buffed finish. Cutters are hand filed to give sharp, perfectly aligned blades.

No. 57-R 7" Linemon Pliers.
No. 58-R 8" Linemon Pliers.



[Q] No. 386 6" Diagonal Cutters. Handles tough cutting jobs with ease. The sturdy over-capacity cutter jaws make short shift of all jobs. A favorite with garage mechanics, industrial plants, wire box makers, etc. Cutter jaws are hand edged after tool is assembled to insure absolute accuracy in alignment and maximum efficiency. High steel buffed finish. Powerful, spring tempered, bow handles fit your hand and afford tremendous cutting leverage.

[R] No. 17 7" End Cutters. This improved type of end cutter has become the recognized standard of design and quality . . . hand filed cutting edges. Hammer forged from finest steels . . . hardened and tempered to provide maximum strength. Spring tempered bow handles. High steel buffed finish.

[S] Finest Diagonal Cutters. Recognized as the highest quality diagonal cutters made . . . hammer forged from finest alloy tool steel . . . individually hardened . . . electrically and oil tempered through and through. Hand filed, perfectly matched cutter jaws. Joints are precision ground and fitted to give easy working but wobble-free action. Spring tempered full fashioned handles give powerful leverage for easy cutting and at the same time provide a comfortable non-slip grip. No. 87 is recommended for cotter pin work and for those tougher cutting jobs. Full steel buffed finish.

★**No. 184 4¼" Midget Cutters.**
No. 85 4½" Diagonal Cutters.
No. 86 6" Diagonal Cutters.
No. 87 7" Diagonal Cutters.

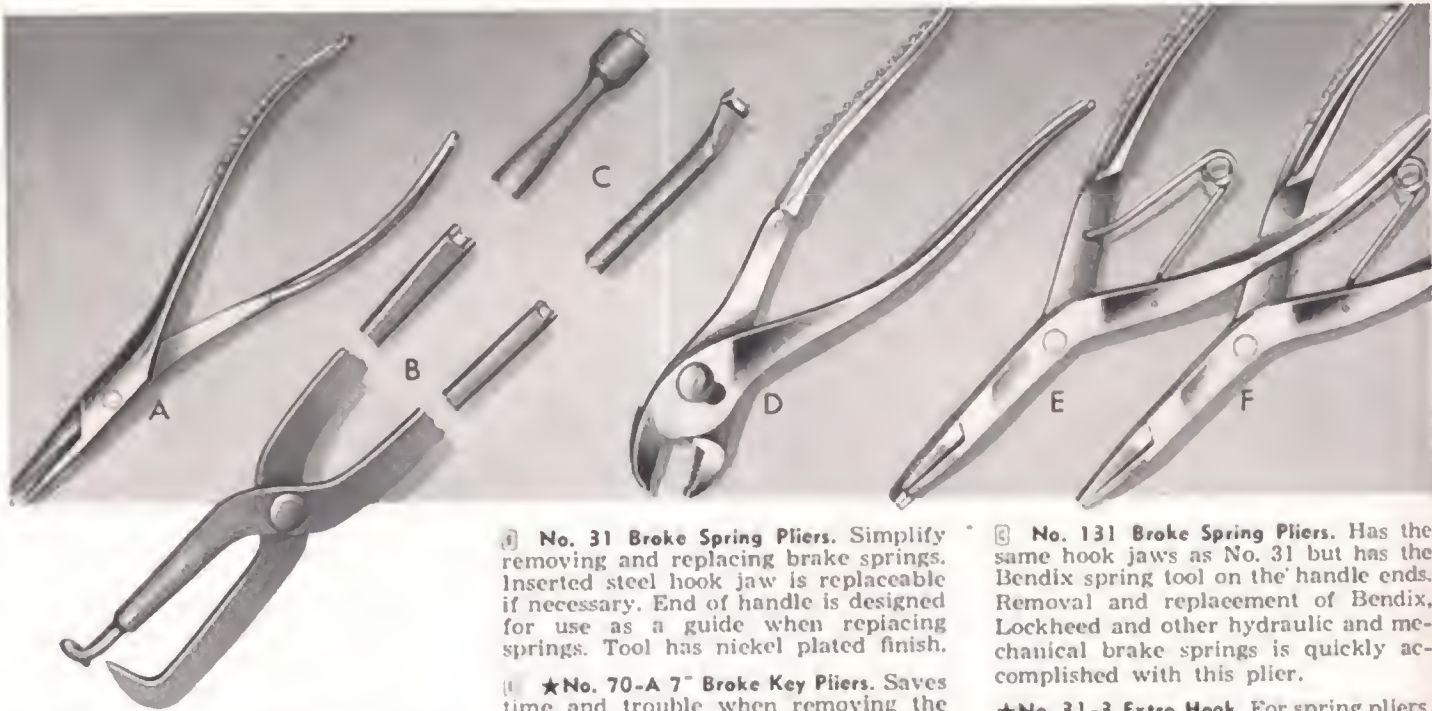
[T] No. 597 Pin Pliers. Matched parallel and cross grooves in the jaw tips provide a sure grip for pulling stubborn pins. Long needle nose reaches into recesses. Bow handles, buffed steel finish, 7¼" long.

[U] Needle Nose Pliers. Slender yet sturdy. The nose is especially heat treated to give spring strength and hardness and assure retention of jaw alignment and gripping power. Cutters on No. 196 are hand filed to meet perfectly. All models have bow handles. High steel buffed finish.

★**No. 94 4½" Midget Needle Nose Pliers.** Without wire cutter. Bow handles.

★**No. 96 6" Needle Nose Pliers.** Without wire cutter. Bow handles.

★**No. 196 6" Needle Nose Pliers.** With wire cutter. Bow handles.



A No. 60-R 7½" Duck Bill Pliers. Just the ticket for pulling the safety wires used to lock nuts on airplanes. The long, flat jaws have a fine serrating on the inside of the tips which will grip without chewing up the wire ends. These pliers are also extremely useful for many small repair jobs on radios, adding machines, typewriters, etc.

A No. 31 Broke Spring Pliers. Simplify removing and replacing brake springs. Inserted steel hook jaw is replaceable if necessary. End of handle is designed for use as a guide when replacing springs. Tool has nickel plated finish.

★No. 70-A 7" Broke Key Pliers. Saves time and trouble when removing the horse shoe lock washer that fits over the anchor pin to hold the brake shoe in place. Jaw tips bend at a right angle and tips of jaws are serrated on the outside to prevent slipping. Spring holds the jaws in closed position. Steel buffed finish.

★No. 70-B Snap-ring Pliers. Similar to above but with straight jaws. Works in close places for easy removal of snap-rings. Steel buffed finish.

C No. 131 Broke Spring Pliers. Has the same hook jaws as No. 31 but has the Bendix spring tool on the handle ends. Removal and replacement of Bendix, Lockheed and other hydraulic and mechanical brake springs is quickly accomplished with this plier.

★No. 31-3 Extra Hook. For spring pliers.

D No. 308 7" Angle Nose Battery Pliers. Short, round nose jaws provide a powerful grip on the terminal nut and prevent damaging top of battery. Valuable for all general gripping purposes. Maximum jaw opening of 1½". The thin tapered nose is offset at a 30° angle for working in awkward spaces. Full fashioned type handles. Nickel-plated finish.

PLIER SETS FOR EVERY NEED



Keep Your Pliers Safe in a Strong Leatherette Kit Bag

No tools are used more frequently or misplaced more often than pliers, but if they are kept in Kit Bags, an empty pocket provides unmistakable warning that a tool is missing . . . gives you time to locate it before it is too late. Frequently tools of this nature are left on running boards or inside of the car. Search can be made there at once before the car is turned over to the customer. Here we offer four kits of pliers—among which you will find the kit best adapted to your service needs!

Midget Plier Set

PLM-30-K Plier Set. Above at left. An ideal set for home and shop—handles those tiny plier jobs. Contains 3 midget pliers in C-31-A Kit Bag.

No. 5.....4½" Midget Gripping Pliers
No. 94.4½" Midget Needle Nose Pliers
No. 184..4" Midget Diagonal Cutters

Basic Plier Set

PL-30-K Plier Set. Illustrated above (2nd from left) contains the three pliers most often used in everyday service work. This set contains the following pliers in C-34-A Kit Bag.

No. 137..7" H. D. Combination Pliers
No. 196.....6" Needle Nose Pliers
No. 87.....7" Diagonal Cutters

PL-30 Set. Above Set, Pliers only.

Standard Plier Set

PL-70-K Plier Set. This set contains pliers that will be needed in a large number of service cases—but it lacks some of the tools needed for specialized work. Next to the General Purpose Set shown at the right this is your best investment. It contains the following pliers in C-73-A Kit Bag.

No. 9-A.....9" Water Pump Pliers
No. 105.....5" Ignition Pliers
No. 137..7" H. D. Combination Pliers
No. 65.....5" Light Weight Grippers
No. 87.....7" Diagonal Cutters
No. 196.....6" Needle Nose Pliers
No. 308.....7" Battery Pliers

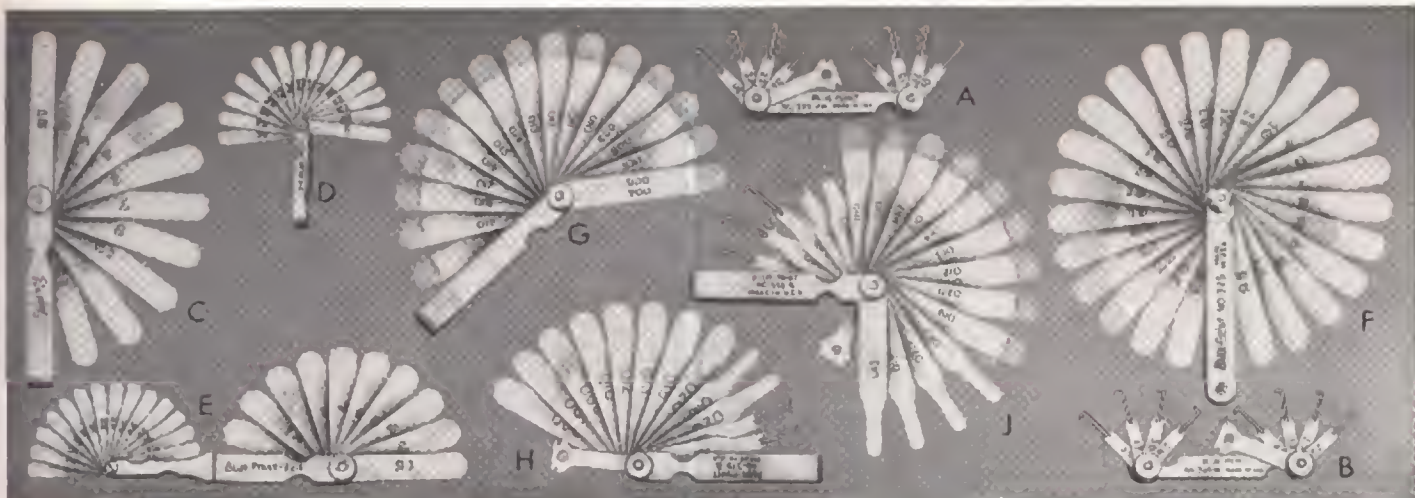
PL-70 Set. Above Set, Pliers only.

General Purpose Plier Set

PL-140-K Plier Set. Contains just about every type of plier for general and specialized service. Complete in C-140-A Kit Bag.

No. 9-A.....9" Water Pump Pliers
No. 105.....5" Ignition Pliers
No. 5.....4½" Midget Gripping Pliers
No. 49.....9" Heavy Duty Pliers
No. 137.....7" H. D. Combination Pliers
No. 65.....5" Light Weight Grippers
No. 87.....7" Diagonal Cutters
No. 62.....8" Heavy Duty Gripping Pliers
No. 196.....6" Needle Nose Pliers
No. 308.....7" Angle Nose Battery Pliers
No. 57-R.....7" Lineman's Pliers
No. 70-A.....7" Brake Key Pliers
No. 31.....Brake and Cotter Pin Pliers
No. 60-R.....7½" Duck Bill Pliers

PL-140 Set. Above Set, Pliers only.



BLUE-POINT FEELER GAUGES WITH BLADES OF IMPORTED SWEDISH TEMPERED STEEL

All blades are tested for accuracy. Gauges are equipped with knurled nut permitting user to slide out the required blade and lock it in position.

A ★No. 309-AW Aviation Wire Gap Gauge with eight sizes, .010, .012, .015, .018, .020, .022, .025, .030 and an electrode bender.

B ★No. 309-W Automotive Wire Gap Gauge with eight sizes, .022, .025, .027, .028, .030, .032, .035, .040, and an electrode bender.

★Extra wires in any of above sizes are available at all times.

C ★310 Standard Feeler Gauge. Ten blades 3¼" long in following thicknesses: .003, .004, .005, .006, .007, .008, .010, .012, .013 and .015.

12" Strips and 10' Rolls

★Following sizes of feeler gauge stock are available in 12" strips and in 10 foot rolls: .0015, .002, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .015 and .018.

D ★314 Ignition and Spark Plug Gauge. Fourteen fingers 1¼" long in the following thicknesses: .008, .010, .012, .013, .015, .018, .020, .022, .024, .025, .028, .030, .032, .035.

E ★324 Combination Feeler and Ignition Gauge. Ten 2½" blades and fourteen 1¼" fingers. Blade thicknesses: .003, .004, .005, .006, .007, .008, .010, .012, .013, and .015. Fingers: .008, .010, .012, .013, .015, .018, .020, .022, .024, .025, .028, .030, .032, .035.

F ★325 General Use Feeler Gauge. Contains the following 3¼" Blades. Sizes—.0015, .002, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025.

Extra Blades and Fingers

★We can supply extra blades in regular thicknesses, in 3¼" or 2½" lengths and in fingers 1¼" length.

G ★315 Step Feeler Gauge. Fifteen 3¼" blades with ¼" step. Sizes .004-.006, .005-.007, .006-.008, .007-.009, .008-.010, .009-.011, .010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019, .018-.020.

H ★379-B Chevrolet Feeler Gauge. Contains eight 3¼" blades in thicknesses of .006, .007, .008, .010, .012, .013, .015, .020; two finger blades .018 and .020; two wire gap gauges .032 and .040 and an electrode bender.

I ★359-B Ford Feeler Gauge. Contains three, spark gap bent wire feelers .025, .028, .030; two straight wire feelers for voltage regulator cutout; four ignition taper blades .013, .015, .020, .025; nine step-ground blades .010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019, .018-.020 and an electrode bender.



BALL PEEN HAMMERS

A Quality from start to finish, these sturdy, well balanced hammers are correctly designed, balanced, and heat treated to make them the most serviceable for all around work. Drop forged from high grade alloy steel, they will withstand long, hard use. The handles are securely anchored in the heads and are made of selected second growth, well seasoned hickory, carefully turned so that the grain runs full length of handle to give maximum strength and resiliency. Extra handles can be purchased as listed below—each comes complete with two metal and one wood wedge.

Hammer Complete		Extra Handle
Stock No.	Weight	Stock No.
7/0	2 oz.	★7-0-H
5/0	4 oz.	★5-0-H
3/0	8 oz.	★3-0-H
2/0	12 oz.	★012-0-H
0	1 lb.	★012-0-H
1	1½ lbs.	★012-0-H
2	1½ lbs.	★24-H
4	2 lbs.	★24-H
6	2½ lbs.	★68-H
8	3 lbs.	★68-H

CELLULOSE TIP HAMMERS

B Use where parts would be injured by hard metal hammers. The tips are tough plastic and will stand a lot of pounding without undue marring of the faces... tips easily replaced in the steel head.

Hammers Complete		Extra Tips		Extra Handles
Stock No.	Weight	Stock No.	Tip Diam.	Stock No.
★91-PH	5½ lb.	★91-PH-2	1½"	★91-PH-3
★92-PH	1 lb.	★92-PH-2	1½"	★91-PH-3
★693	2 lbs.	★693-A	1½"	★693-H

NYLON-NUPLAFLEX HAMMERS

C ★NP-20 20 oz. Nylon-Nuploflex Hammer. A combination soft-tip hammer having one NYLON and one NUPLAFLEX tip. Nylon tip is extremely hard and will outlast several plastic tips. Nuplax tip is medium hard (soft Nuplax tips also available) and is a "live" material having no rebound or stinging—will not mushroom with use. Tips screw on and are easily replaced.

★NP-20-1.....Metal head.
★NP-20-2.....Nylon tip, hard.
★NP-20-3.....Nuplax tip, soft.
★NP-20-4.....Nuplax tip, medium.
★NP-20-5.....Seasoned wood handle.

UPHOLSTERER'S HAMMER

D ★No. 6020 Upholsterer's Hammer. Will prove useful in any shop, especially those doing body work. The steel head is 5½" long with a "split-type" magnetic tip on one end and a larger flat face on the other. A claw is mounted on the end of the handle for removal of tacks. Weighs 7 oz. ... over-all length 10¾".

★No. 6020-2 Extra Handle Only

★No. 6020-3 Extra Tack Claw Only



ELECTRIC SOLDERING IRONS

★GA-20 Soldering Iron. Has a ¼" tip for radio and other light work. It is fast heating and holds heat long enough for this class of work. 105-120 volts, A.C. or D.C. 90 watt. 210 to 240 A.C. or D.C. tools available on special order.

★GA-20A Extra ¼" tip.

★GA-38 Soldering Iron. Has a large, heavy 1½" tip. Will hold heat much longer than smaller irons. Solid compressed copper tips are easily replaceable. 105 to 120 volts, A.C. or D.C. 275 watts. 210-240 volt irons available.

★GA-38A Extra 1½" tip.

INCREASE VALVE SERVICE PROFITS

WITH THE NEW

Snap-on

WET VALVE REFACTOR

WET GRINDS ALL VALVE ANGLES
FROM ZERO TO 90 DEGREES

*Any Mechanic Can Do a Fast
Precision Grinding Job on*

- VALVE FACES
- VALVE STEM BUTTS
- TAPPET FACES
- ROCKER ARMS

HANDLES VALVE FACES UP TO 4" DIAMETER

QUICK SET STOPS AT 15°, 20°, 29°, 30°, 44°, 45°, 90° ANGLES

VR-100 Snap-on Wet Valve Refacer, handles all necessary valve, valve lifter and rocker arm grinding on modern cars, trucks, tractors and motors in general without requiring the purchase of additional attachments. All accessories listed below are included as standard equipment.

The main motor on standard models is $\frac{1}{2}$ H.P., 110 volt, 60 cycle, single phase, with 10 feet of 3 conductor cable. The workhead has a 110 volt AC-DC Universal motor with worm and gear drive, ball and sleeve bearings. Special main and workhead motors are available on special order.

Hinged rubber motor mount adjusts for belt stretch. V-belt drives wheels and coolant pump and is easily replaced. Vane-type pump and coolant tanks are easily removed. Sediment tank collects grit. Coolant line valves control flow to either wheel. All moving parts are hardened steel and precision ground. Top and bottom traverse tables have "V" shaped adjustable lathe-type ways that assure smooth, accurate operation because they fit perfectly and hold adjustment longer.

Right-handed traverse lever is instantly adjusted to the most convenient work position by means of a turn-knob. Adjustable safety stop protects the spindle nose from contacting the grinding wheel and becoming damaged during the valve refacing operation. Net Weight 225 lbs.

STD. EQUIPMENT INCLUDED

1. Rocker arm attachment with one bushing (Chevrolet—unless specified).
2. Micrometer grinding attachment to service valve butts and valve lifters.
3. Two workhead collets—capacities of $\frac{1}{2}$ " to $\frac{3}{4}$ " and $\frac{1}{2}$ " to $1\frac{1}{2}$ " (a special $\frac{1}{2}$ " to $\frac{3}{4}$ " size also available).
4. Valve depth gauge for mushroom valve.
5. Diamond nib wheel dresser and holder.
6. Soluble oil for coolant solution.
7. Lift-out sediment collecting tank.
8. Two grinding wheels—one metal backed, 4" diam., 46 grit for butt grinding—one 60 grit, 5" diam., offset wheel for valve faces. (80 grit wheel also available.)
9. Valve lifter "U-Bar" clamp.
10. Special wrench for workhead nut.

SNAP-ON VALVE-CAB

KR-311 Valve-Cab. Provides an excellent base for your Valve Refacer . . . any such grinding equipment should be mounted separately to avoid vibration from other machinery.

Gives you plenty of room for all your valve seat grinding equipment, accessories and valve tools. Valve rack extensions are removable . . . Drawer and doors have tumbler-type locks . . . rack on rear of cab for coiling electric cable . . . electric connection panel has 3-wire inlet plug and two outlets . . . easy rolling rubber tired wheels. Dimensions—30" long, 20" wide, 28" high, height from floor 31". Drawer is $23\frac{3}{4}$ " x $19\frac{3}{4}$ " x 4". Net weight 90 lbs.





VALVE SERVICE TOOLS

OVERHEAD VALVE ADJUSTING TOOLS

A Valve Adjusting Tool. Redesigned for greater working ease this tool has a longer handle than previous models and features a spring lift on the adjusting knob . . . it is convenient to use and will prove to be a big time saver on those overhead rocker-arm tappet adjusting jobs. The socket is snapped onto the square drive, and with the motor idling, it is inserted over the lock nut . . . the knob handle is pushed down to engage the screw driver blade in the screw slot and the adjusting and locking operation performed easily and quickly. Handle is 9 $\frac{3}{4}$ " long to afford leverage and hand clearance. The knobs interchange quickly and are held on by means of the familiar socket wrench friction ball grip. The small knob is needed on some Buick engines for the tappet next to the firewall where clearance is very limited. Three special sockets are provided for use with this tool.

V-21-CDS Set. Consists of the adjusting tool, both large and small knobs and three special sockets, PSW-161 $\frac{1}{2}$ ", PSW-181 $\frac{3}{4}$ " and PSW-201 $\frac{5}{8}$ ".

V-21-C5 Set. Same as above but with large knob only.

V-21-C Adjusting Tool, with large knob only.

V-21-D2..... Small-Knob
PSW-161..... $\frac{1}{2}$ " Hex Socket

PSW-181..... $\frac{3}{4}$ " Hex Socket
PSW-201..... $\frac{5}{8}$ " Hex Socket

BLUE-POINT VALVE SPRING COMPRESSORS

C Valve Spring Compressors. These sturdy tools service late model cars without removing the manifold. The handles sit high on the frame out of the way of obstructions . . . compress on the downward push with 8 to 1 leverage . . . sliding ring locks the tool leaving both hands free for key removal or replacement . . . threaded plunger adapts to various valve stem lengths . . . large foot has spring loaded centering point to grip the valve head tightly.

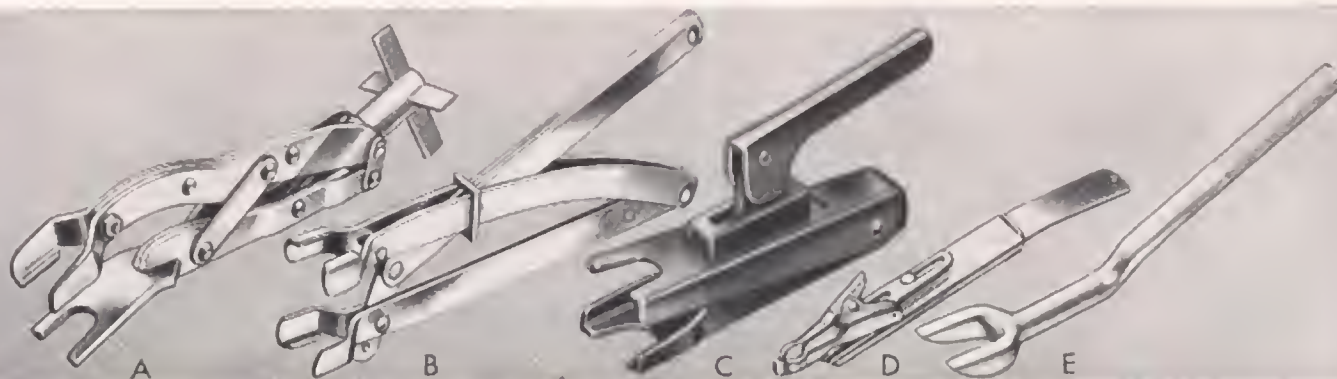
CF-1B Valve Compressor. Inside depth 10 $\frac{3}{4}$ ", width 12", opening capacity with offset jaws 10 $\frac{1}{4}$ ". Complete with three pairs of jaws, CF-21P Straight, CF-22P offset and CF-23P Extra Heavy Straight type listed and illustrated above. A large heavy duty tool.

CF-11A Valve Compressor. Inside depth 10 $\frac{3}{4}$ ", width 9 $\frac{1}{4}$ ", opening capacity with offset jaws 10". Complete with CF-22P offset jaws and CF-21P Straight jaws.

B CF-26 Cadillac Valve Lifter Adaptor. Use with the compressors listed above for servicing Cadillac cars. Opening in side allows use of CF-7A Key Replacer shown below. Can also be used on some Waukesha engines.

D Lifter Jaws

CF-21P..... Pair Straight Jaws
CF-22P..... Pair Offset Jaws
CF-23P..... Pr. Ex. H. Straight Jaws



SCREW TYPE VALVE LIFTER

A CF-49 Valve Lifter. "The little Shorty with the Big Lift" . . . redesigned to give greater clearance under the manifold and over the fuel pump. Short and compact—only 9 $\frac{1}{4}$ " long, it will get into tight spots and work on most "L" head engines including 1949 Ford built models. Top jaws are adjustable for various spring sizes. Bottom jaw is made of flat steel riveted to the frame of the lifter. Lifting capacity of the tool is 2 $\frac{3}{4}$ ". Jaws remain parallel at all times and lift the spring without binding or slipping to a height which allows room for access to the valve stem keys.

Fast . . . safe . . . efficient . . . jaws lock open at any point leaving your hands free to remove the keys. On Pontiac or other engines having valve spring guides, the guides must be turned to clear the jaws of the lifter. Sturdy enough to lift any valve spring in common use.

"L" HEAD VALVE SPRING COMPRESSOR

B CF-18 Valve Spring Compressor. You can compress valve springs easily . . . safely . . . quickly—when you use this sturdy and efficient tool for the job . . . the jaws are adjustable for practically all diameter valve springs from model "A" Ford to Dodge and Studebaker, and the handle link is made with two positioning holes for adjusting the tool for complete compression of different length valve springs.

This valve spring compressor is only 9 $\frac{1}{4}$ " long, but it compresses the stiffest springs easily and quickly and is most useful for replacing and removing springs in late model cars having fenders in close to the motor.

A sliding ring locks the tool with the valve spring compressed at any preferred position. This tool affords a much faster way to compress these springs than by using a spring clip and gives you a greater degree of safety.

OVERHEAD VALVE SPRING COMPRESSOR

C VL-30 Overhead Valve Spring Compressor. Designed for fast, efficient operation on Chevrolet and all other makes of cars having overhead valve engines with springs up to 1 $\frac{3}{8}$ " in diameter and 2 $\frac{1}{4}$ " in length. The single-action lever compresses the spring and locks securely—all in one motion—leaving both hands free to remove or replace the valve keys. It eliminates prying on the cylinder head and is safe to use.

A sliding wedge under the handle adjusts to three positions to vary the jaw capacity. The round-finished end provides a smooth surface for the palm of the hand when inserting the jaws between the springs. Cold rolled channel steel construction makes it a sturdy tool.

Note: Special Ford Valve Tools are shown on pages 84-85.

VALVE KEY REPLACER TOOL

D CF-7A Valve Key Replacer. The narrowest, most compact tool ever perfected for replacing easily and quickly all split type valve keys. It requires a very minimum of work space. The sliding base absolutely prevents the keys from dropping into the motor while being replaced . . . Easy to load . . . Easy to use—you'll find yourself doing the job in less time than you ever thought was possible.

E A-150 Valve Spring Tool. Simplifies removal and replacement of valve springs in practically all "L" Head engines without the use of additional tools. The special shaped jaws raise the spring up over the valve lifter and slide it out easily and quickly—replacement is just as simple. The whole job can be done so quickly that it will pay you to remove and test the springs on every valve job. Tool is 9 $\frac{1}{16}$ " long, jaw opening $\frac{1}{16}$ " wide.

Blue-Point VALVE SEAT

FOR FAST, ACCURATE



VG-120-B Valve Seat Grinder Set. Contains all parts shown above and listed at right in KR-100 special metal case. Plenty of room for additional stones and pilots. Case has non-spill drawers and pilots. Case has enamel finish. Set handles hard and soft seats and is so simple to use that any mechanic can turn out valve jobs equal in fit and finish to factory standards.

Angle Drive Motor. This high speed, heavy duty unit is the main item in the set. It has a built-in angle drive head to get under hood obstructions—permits you to grind accurately from any angle. (See opposite page for full description). Power is transmitted through a hex-ball drive adaptor which snaps into a retaining

spring in the stone carrier, allowing flexibility without danger of binding the carrier on the pilot... the tension lets you clear the work before stopping the motor—preventing marring the finished seat.

Stone Carriers have pre-oiled bearings for long service. The socket in the stone carrier is spring mounted to allow a vertical vibrating action of the stone which, with the centrifugal force, throws out the grindings and prevents undue pressure on the stone. Cooling fins dissipate heat and prevent the carrier from seizing on the pilot. Perfect alignment of stones assures absolutely concentric seats.

Blue-Point Stone Dresser will dress all angles from zero to 90°. It is described in detail on opposite page.

Blue-Point Stones and Pilots are described below.

Contents of the VG-120-B Set

VG-11	Angle Drive Motor
★VG-10-2B	Stone Carrier (2 included)
VG-25A	Diamond Stone Dresser
★VX-10	5/16" Pilot
★VX-11-L	1 1/2" Pilot
★VX-12	3/4" Pilot
★VS-90	Ford "V8-85" Pilot
★VX-14	7/16" Pilot
★VG-5	Pilot Wrench
★SE-560-R	1 1/4" x 45° Stone (For Hard Seats)
★SE-520-R	1 1/2" x 45° Stone (For Hard Seats)
★CI-480	1 1/2" x 45° Stone (For Cast Iron)
★CI-520	1 1/2" x 45° Stone (For Cast Iron)
★CI-560	1 1/2" x 45° Stone (For Cast Iron)
★CI-600	1 1/2" x 45° Stone (For Cast Iron)
★CI-483	1 1/4" x 30° Stone (For Cast Iron)
★CI-563	1 1/4" x 30° Stone (For Cast Iron)
★SE-560-F	1 1/4" x 45° Stone (For Finishing)
★SE-520-F	1 1/2" x 45° Stone (For Finishing)
KR-100 Metal Cabinet, Red Enamel Finish.	

Blue-Point STONES—PILOTS—GUIDE REAMERS



A BLUE-POINT STONES FOR EVERY VALVE SEAT JOB

One-third thicker than ordinary stones and give almost double the length of service. Threaded bushing extends part way through the stone and does not interfere with dressing operation before stone is fully used up.

Stone Size	Stone Thickness	For Cast Iron and Soft Steel		For Hard Steel and Stainless		For Finish Grinding	
		45°	30°	45°	30°	45°	30°
1 1/4"	1"	★CI-400	★CI-403	★SE-400-R	★SE-403-R	★SE-400-F	★SE-403-F
1 1/2"	1"	★CI-440	★CI-443	★SE-440-R	★SE-443-R	★SE-440-F	★SE-443-F
1 3/4"	1"	★CI-480	★CI-483	★SE-480-R	★SE-483-R	★SE-480-F	★SE-483-F
1 1/2"	1"	★CI-520	★CI-523	★SE-520-R	★SE-523-R	★SE-520-F	★SE-523-F
1 3/4"	1"	★CI-560	★CI-563	★SE-560-R	★SE-563-R	★SE-560-F	★SE-563-F
1 1/2"	1"	★CI-600	★CI-603	★SE-600-R	★SE-603-R	★SE-600-F	★SE-603-F
1 3/4"	1"	★CI-640	★CI-643	★SE-640-R	★SE-643-R	★SE-640-F	★SE-643-F
2"	1"	★CI-680	★CI-683	★SE-680-R	★SE-683-R	★SE-680-F	★SE-683-F
2 1/4"	1 1/4"	★CI-720	★CI-723	★SE-720-R	★SE-723-R	★SE-720-F	★SE-723-F
2 1/2"	1 1/2"	★CI-760	★CI-763	★SE-760-R	★SE-763-R	★SE-760-F	★SE-763-F
2 3/4"	1 3/4"	★CI-800	★CI-803	★SE-800-R	★SE-803-R	★SE-800-F	★SE-803-F
2 1/2"	1 3/4"	★CI-840	★CI-843	★SE-840-R	★SE-843-R	★SE-840-F	★SE-843-F
2 3/4"	1 3/4"	★CI-880	★CI-883	★SE-880-R	★SE-883-R	★SE-880-F	★SE-883-F
2 1/2"	1 3/4"	★CI-920	★CI-923	★SE-920-R	★SE-923-R	★SE-920-F	★SE-923-F
3"	1 3/4"	★CI-960	★CI-963	★SE-960-R	★SE-963-R	★SE-960-F	★SE-963-F
3 1/2"	2"	★CI-1000		★SE-1000-R		★SE-1000-F	

D VALVE GUIDE HOLE BRUSHES

Well made brushes of spiral design. Highest quality wire, securely woven into the twisted wire shank. Fluted wood handle provides a firm grip.

No.	Size
★AC-10	4 1/2"
★AC-11	11 1/2"
★AC-12	8 1/2"

B BLUE-POINT PILOTS

These self-energizing pilots lock securely and center correctly, because each segment acts independently, compensating for wear in its own portion of the guide hole—accommodates guides worn up to .008". Valve guide hole should be cleaned before inserting pilot.

Number	Size	Length	Number	Size	Length
★VX-10	5/16"	5 1/2"	★VX-14-L	7/16"	8 3/4"
★VX-11	11/32"	5 1/2"	★VX-16	1/2"	6 3/4"
★VX-11-L	1 1/2"	6 1/2"	★VX-16-L	1 1/2"	8 3/4"
★VX-12	3/4"	6 1/2"	★VX-18	9/16"	6 1/4"
★VX-12-S	3/4"	4 3/4"	★VX-19	19/32"	5 1/2"
★VX-14	7/16"	6 3/4"	★VS-90	"V8-S5"	7"

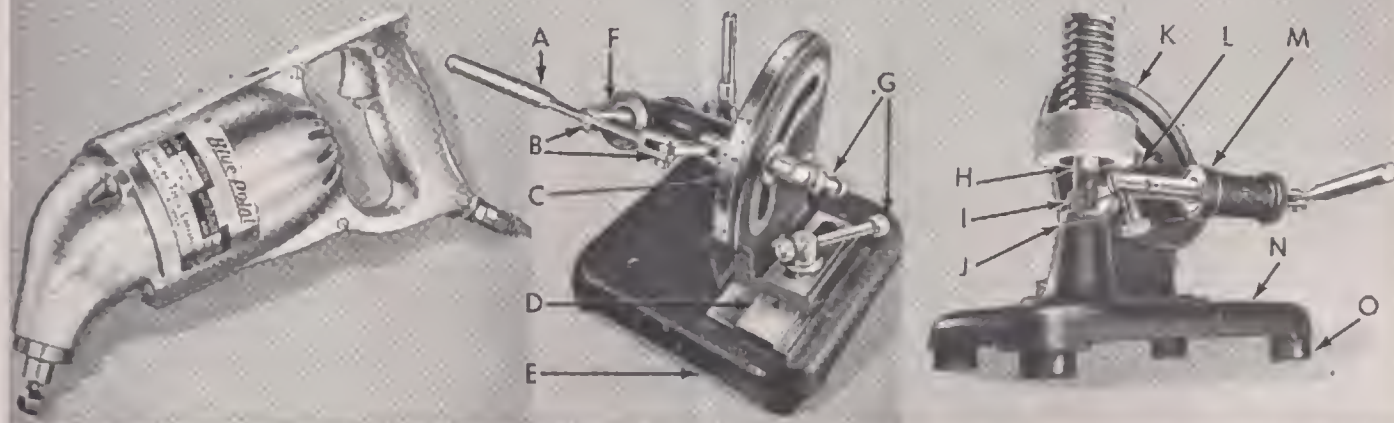
C VALVE GUIDE HOLE CLEANERS

Built to work in a 1/4" electric drill. Square spring stock blades are extremely rigid and give a very fine cutting action... correct tension is regulated by the adjusting nut. The smallest size fits most cars, the popular sizes being 5/16", 11/32", and 3/8".

★BC-10 5/16" to 1/2" Capacity	★BC-25 2 1/2" for V8-60 Ford
★BC-10-5 Set of 5 blades	★BC-25-11 Set of 11 blades
★BC-14 1/4" to 3/4" Capacity	★BC-31 3 1/2" for V8 Ford
★BC-14-7 Set of 7 blades	★BC-31-13 Set of 13 blades

GRINDER . . . THE FINEST MADE

RESURFACING ON HARD OR SOFT VALVE SEATS



BLUE-POINT ANGLE DRIVE MOTOR

VG-11 Heavy Duty Angle Drive Motor. This is an exceptionally powerful tool built to maintain the constant high speed necessary for good work on hard seats. An important feature of this tool is the built-in angle drive which works around obstructions and permits accurate grinding from any angle. The powerful, high speed motor is equipped with all ball bearing construction on armature shaft and spindle, grease-sealed and permanently lubricated. (Gear housing should be lubricated occasionally). Large integrally mounted fan blows air around nose keeping the work free from grit and grindings. Though only 6½ pounds weight—it is powerful enough to maintain a load speed of 10,000 R.P.M. Standard voltage 110 volts AC-DC, also available in special voltages. Complete with 15' of 3 conductor rubber cord and plug.

BLUE-POINT UNIVERSAL DIAMOND STONE DRESSER

VG-25A Diamond Stone Dresser. This completely universal tool dresses seat stones of all types, sizes and angles, it has every adjustment required to dress any valve seat grinding stone now in use or likely to be used.

★VG-25-6 Replacement Diamond Screw.

Note these features:

- A—Strong, comfortable handle for easy operation.
- B—Handle joints are accurately machined to give smooth, wobble-free operation.
- C—Large, easily read setting gauge and index is fastened to top of sliding plate—can be set quickly and accurately.
- D—Three bolt stations and adjustable top plate provides a travel capacity, far greater than the diameter of largest valve seat stones.
- E—Ruggedly built cast iron base 7½"×7½" is heavily ribbed for great rigidity. Original factory alignment is permanently assured.

- F—Hardened plunger is ground to precision standards. A machined keyway guides the diamond screw.
- G—Big bolt handles lock the units rigidly.
- H—Collar provides additional stone height.
- I—Threaded pilot adjusts stone height.
- J—Knurled lock nut locks the pilot at the required stone height.
- K—Contact faces of plates are machined to provide smooth operation and perfect alignment of parts. Spring tension in the index plates aids in setting.
- L—The diamond tipped screw affords over a half inch of adjustment to stone diameter and for regulating cutting feed. Completely universal, it can be adjusted to dress the side, angle and bottom of any valve seat stone.
- M—Each end of the plunger guide hole is sealed with leather packing to prevent the entrance of grit.
- N—Holes are provided in base for permanently mounting the dresser.
- O—Rubber feet minimize vibration.



BLUE-POINT VALVE LAPPING TOOLS

VL-90 Heavy Duty Valve Lapper. A heavy duty air operated valve lapper that both oscillates and rotates the valve as it is being lapped into its seat. Assures perfect mating of the parts with no high or low spots. Sturdy cast aluminum case for strength with light weight—designed to fit in the palm of the hand. Handy "trigger switch" is adjustable to regulate the speed of operation. Hardened shaft is mounted on a needle bearing and a thrust bearing for smooth, practically friction-free operation. Piston rides in a replaceable brass sleeve. Driving bit and spring are included. Operates on 85-125 pounds air pressure.

VL-60 Standard Valve Lapper. This valve lapper is built for the garage or service shop doing intermittent valve work. Lighter in weight and construction than the VL-90. Oscillates and automatically rotates the valve during the lapping operation and works equally well on hard steel or stellite valve seats. Hardened steel shaft is mounted in oil impregnated bronze bearings. Case is an aluminum die casting with well rounded corners for a perfect palm-fit. Trigger is adjustable to regulate the speed to any lapping job. Complete with hardened steel driving bit and spring. Operates on 85-125 pounds air pressure.

VL-51 Hose. Eight feet of rubber hose with ¼" pipe tap fittings. Fits VL-90 and VL-60 Valve Lappers.

VL-53 Valve Lift Spring. Use under valve when using valve lappers.

VL-604A Valve Lapper Set. Consists of VL-60 Valve Lapper, VL-51 Hose, VL-53 Valve Lift Spring and VLC-40 Suction Cup.

VG-15 Ball Bearing Stone Carrier. A ball-bearing mounted inner sleeve slips over the pilot but does not rotate. The outer sleeve to which the stones are attached, rides on these bearings assuring smooth operation. Overall length 4¾". Use with VG-11 Motor above and pilots and stones listed on page 62.

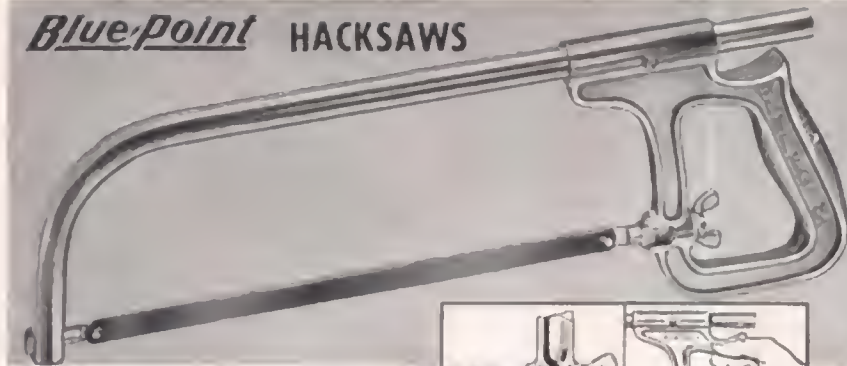
VG-2A Valve Lopper. The sturdiest and smoothest operating tool of its kind. Heavy, machined, cast-iron housing for rugged use, all gears heat treated to resist wear, shaft has ball bearing thrust. Blade oscillates rapidly and advances ¼ revolution with each turn of the crank. Tool includes one universal driving bit.

VG-2-24 Short Bit. 2¼" long. Not included with VG-2A.

Rubber Suction Cups. Hold non-slotted valves properly for lapping operation. High grade rubber shaped to grip tightly. Fit shafts of lapping tools shown above.

VLC-40 1¼" Diameter Cup.
VLC-56 1¾" Diameter Cup.

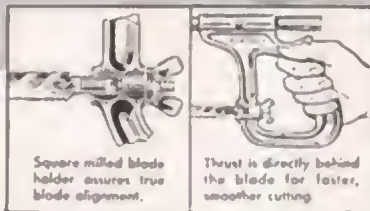
Blue-Point HACKSAWS



A PRECISION MACHINED ALL-METAL FRAME

Tube Steel with Aluminum Handle

★HS-9 Hacksaw Frame. Sturdily built for real performance. The one-piece steel tube back is fitted into a precision machined, cast aluminum handle giving extreme rigidity with light weight. True alignment of the blade is assured by the carefully machined square blade holders which fit into milled slots in the handle and frame as illustrated. Permits tightening the blade to eliminate side or vertical deflection. Large handle provides a comfortable grip. Easily adjustable to take either 10" or 12" blades. This is the finest frame we have ever offered.



HIGH QUALITY NU-CUT FILES

Made from high grade alloy steel of special formula, these tools will continue to do good cutting long after ordinary files have worn smooth. Every file is the same high grade quality. Adherence to rigid manufacturing and hardening processes eliminates any variance between different batches of finished files.

Length	Mill Bastard Series	Half Round Bastard Series	Round Bastard Series	
	Stock No.	Stock No.	Stock No.	Diam.
6"	★ 6-M	★ 6-HR	★ 6-R	3/16"
8"	★ 8-M	★ 8-HR	★ 8-R	1/4"
10"	★ 10-M	★ 10-HR	★ 10-R	5/16"
12"	★ 12-M	★ 12-HR	★ 12-R	3/8"
14"	★ 14-M			7/8"
16"	★ 16-M			1 1/2"



STANDARD HACK SAW FRAME

★HS-1D Standard Hack Saw Frame. High grade Hack Saw, reasonably priced. A good all around tool sturdily built to give rigid cutting condition. Comfortable, metal pistol grip means less hand fatigue. Grip is securely riveted to the frame—frame length is adjustable—accommodates all blades.

EXTRA FINE DELUXE HACK SAW FRAME

★HS-11-A Deluxe Hack Saw Frame. Rigid construction and perfect balance reduce possibility of blade "whip" and breakage and make this saw a pleasure to use. The handle and rear portion are one-piece design with large hand aperture . . . red pyralin hand grips give a firm hold and stand out in effective contrast to the plated and polished frame. Note the under-slung handle so designed that the power is delivered along the blade line, resulting in easier, faster cutting. Fits all standard blades.



WOOD FILE HANDLES

These sturdy handles have a metal ferrule which is molded right into the wood . . . providing sure grip and preventing danger of splitting the handles. Smoothly finished. Protect your hands.

- ★No. 102-E.....Fits 6" to 8" Files
- ★No. 103-E.....Fits 8" to 10" Files
- ★No. 104-E.....Fits 12" to 16" Files

FLEX-STONES

Economical — longer lasting — flexible — made from a plastic material imbedded with highly vitrified abrasive. Flex-Stones are flexible and will not break under side pressure—they will cut materials and handle jobs which a file cannot service, and offer a better method of truing up ignition and spark plug points. These stones are non-conductors of electricity.

- ★GA-3 Flex-Stone. (.050" thickness).
- ★GA-43 Thin Flex-Stone (.025"). Ideal for Voltage Regulator work.



BLUE-POINT BLADES

These blades are made of a combination of tungsten and other alloy steels, heat treated by a special process making a blade that is hardened throughout yet is flexible. These are very good blades for standard cutting and give plenty of resistance to breakage.

Package (10 Blades) Stock No.	Length	Teeth per Inch
★HSB-1032	10"	32
★HSB-1232	12"	32
★HSB-1024	10"	24
★HSB-1224	12"	24
★HSB-1018	10"	18
★HSB-1218	12"	18

HIGH SPEED BLADES

Made of Molybdenum High Speed Steel with back of blade annealed to make it unbreakable. Tooth edge hardened for durability. May be used under all awkward sawing conditions. This is a non-breakable blade which withstands hard usage, even misuse, without shattering. Sharp twists and kinks, which are the main reason for saw breakage, are absorbed without damaging the blade.

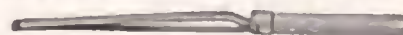
Stock Number	Length In Inches	Teeth Per Inch
★LHS-1018	10"	18
★LHS-1024	10"	24
★LHS-1032	10"	32
★LHS-1214	12"	14
★LHS-1218	12"	18
★LHS-1224	12"	24
★LHS-1232	12"	32

TUNGSTEN IGNITION POINT FILE



★5-TP Ignition Point File. A fine double-cut tungsten file, the type preferred by most mechanics for filing spark plug and distributor points . . . also useful in cleaning contact points of magnetos, bells, switches, radios, etc.

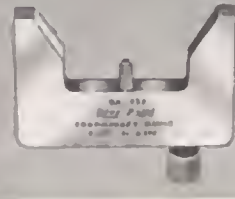
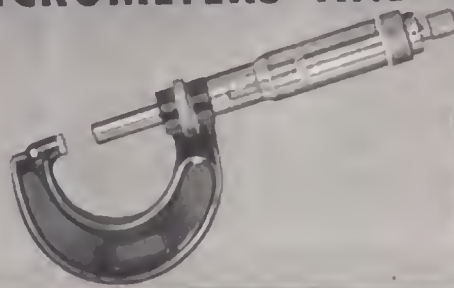
BLUE-POINT JUNIOR HACK SAW



★A-51 Junior Hack Saw. The ideal saw for use in very close quarters. Sturdy construction, holding the blade with a powerful, non-bucking grip. Blades 6" x 3/16", 32 teeth to the inch. Complete with one blade.

- ★No. 6 Pocket of twelve blades.

MICROMETERS AND GAUGES



SLOCOMB MICROMETERS — TOP QUALITY PRECISION TOOLS

Accurate: One-piece hard tool steel screw distributes the wear over a wide surface. Large screw and anvil surfaces resist wear and reduce adjustments. When adjustments are finally necessary they are easily made. Instructions are packed with tools.

Wide Range of Types: There is a Slocomb micrometer for almost any need—sets are available with a maximum range 0-24", or, in metric, 0-600mm. For complete information ask your Snap-on man or write to nearest branch office (page 2) for folder.

Low Maintenance: No parts are sold separately, but most parts are replaceable if the tool is returned to factory. This means economical repairs when instruments are broken or worn past the point where adjustments will compensate for it.

MODF-04 Micrometer Set. Zero to 4" capacity by 1,000ths. Set includes one direct reading micrometer, four interchangeable anvils and three end measures for setting or checking purposes. The direct reading device is only available on Slocomb micrometers and affords fast, accurate readings. Friction stop provides fast spinning and accurate measurement. Furnished in English markings only.

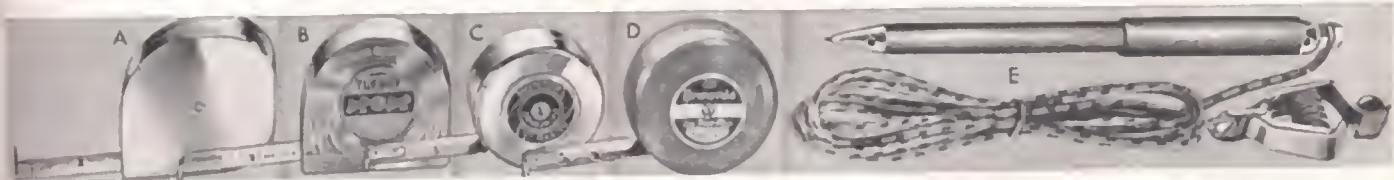
MOLF-01 Micrometer. Zero to 1" capacity, calibrated in 1,000ths and marked with easy-to-read, big numerals and clean etched divisions. The thimble is marked with decimal equivalents. The friction stop spins for fast operation, but "breaks" when overloaded to prevent strain on the micrometer. Lock nut holds the micrometer at any setting.

CRANKSHAFT GAUGES

Measure the diameter of the crankshaft main journals without removing the crankshaft from the car. Precision tools, they are accurate to split thousands. Lock holds the plunger in position after being applied to the journal so accurate "miking" of the gauge is possible.

- GA-121 Gauge 1.970"-2.550" Cap.
- GA-122 Gauge 2.470"-3.250" Cap.
- GA-123 Gauge 3.220"-4.125" Cap.
- GA-124 Gauge 4.125"-5.250" Cap.
- GA-125 Gauge 5.250"-6.750" Cap.

*Special order only.



PRECISION-BUILT STEEL TAPE RULES

Blades withstand exceptionally hard wear and outlast ordinary rules. First 6" is engraved in 32nds, rest of the blade in 16ths and each blade is engraved several inches past the six foot mark. Wind-up spring aids in retracting the blade. Blades are replaceable. Cases can be taken apart for cleaning.

A ★406 6' Steel Tape Rule. A very fine tool with a cam lever lock built into the case to hold the blade in the measured position, this allows you to remove the rule from the job for accurate reading. Open case top allows easy inside measurements. Tempered steel rule has markings etched on both sides.

★406-1 6' Blade for above rule.

B ★306-W 6' Steel Tape Rule. The steel tape has a white moisture and acid proof enameled finish with large jet-black figures and markings. The unbreakable die cast zinc alloy case is exactly 2" wide making inside measurements easy to figure.

★604BW 6' White Blade for above rule.

★310-W 10' Steel Tape Rule. Same as 306-W but 10' long.

★310W-B 10' White Blade for above rule.

B ★306 6' Steel Tape Rule. Unbreakable die-cast zinc alloy case is 2" wide, simply add 2" to dimension shown on rule for inside measurements. Figures and markings permanently etched on tempered steel blade.

★604B 6' Blade for above rule.

★308 8' Steel Tape Rule. Same as 306 but 8' long. Available on special order.

★804B 8' Blade for above rule.

★804BW 8' White Blade for above rule.

C ★206A 6' Steel Tape Rule. A narrow rule in a flat surfaced, round steel case that is kind to your pocket. Only 3/4" wide. Markings permanently etched on the tempered steel blade.

★206A-B 6' Narrow Blade for above rule.

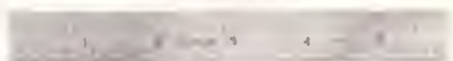
D ★116 6' Steel Tape Rule. A favorite with engineers, draftsmen and others who use a steel rule at office or home. High quality blade has etched markings. Brown Tenite plastic case.

★604B 6' Blade for above rule.

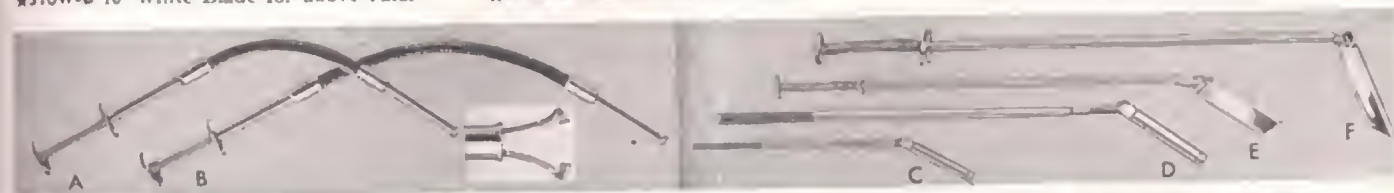
ETCHING PENCIL

E GA-39 Etching Pencil. Personalize your equipment and cut down loss by etching your name or other identification marking on your tools. You can do it quickly and easily with this etching pencil. Simply connect the alligator clip to the negative post of a battery and lay the tool to be marked on the positive post, or if the battery is in the car lay the tool on some metal part of the car and connect clip to ungrounded post. Touching the point of the pencil to the tool will cause the needle to vibrate and etch the metal as you guide the pencil.

STEEL RULE



★GA-2 6" Steel Rule. Stiff tempered, with ground edges, 3/4" wide, .035" thick, graduated in 32nds on one edge and 64ths on the other. Decimal equivalents etched on back.



FLEXIBLE "GRIP-IT" TOOLS

These mechanical fingers reach into tight places to pick up dropped parts or tools or to insert small parts, start nuts or screws, etc. The plunger actuates two powerful spring steel jaws the ends of which are notched to give a secure grip. Strong flexible cable connects jaws to plunger.

A 712-SF Semi-Flexible "Grip-It". 12" long, with a 5" flexible section which allows tool to be used at a 90° angle.

B 715-FF Fully-Flexible "Grip-It". 15" long, with an 8" flexible section. Bends into a double "S" or a double right angle and still grips any object tightly in the jaws.

PICK-UP TOOLS

Here are the perfect tools for picking up and retrieving iron and steel objects such as bolts, nuts, washers, cotter pins, parts, etc., that fall in hard-to-get-at places. Permanent Alnico magnets of surprising power are fitted to the ends of brass sleeves. The small outside diameter of the sleeve, 5/16" for the PT-9 and 1/4" for the PT-27 enables them to slip into small openings with ease, while the hinged heads give around-the-corner accessibility as well.

C PT-9 Small Pick-up. Lifts 8 oz. Length 9 1/4".

D PT-27 Large Pick-up. Lifts 24 oz. Length 16 1/2". Sliding handle extends to 27".

INSPECTION MIRRORS

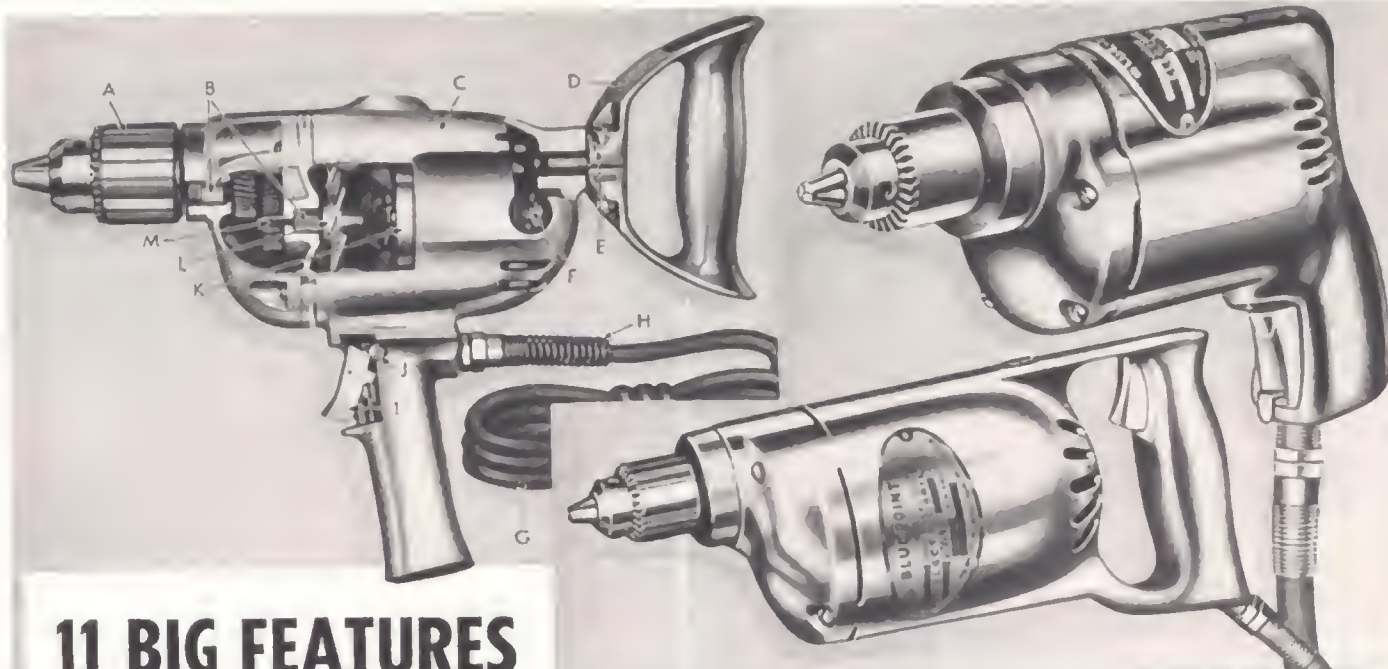
The mirror can be inserted past obstructions and then turned to the best viewing angle by pushing the plunger. . . It locks at the desired angle and returns to the straight position when the locking lever is tripped. One hand holds and operates the tool leaving the other hand free to make inspections, adjustments, etc.

F ★GA-51 Large "Mirror-View". 17 1/4" long, mirror 1 3/4" x 2 3/4".

★GA-51-1 Extra mirror for above tool.

E ★GA-52 Small "Mirror-View". 10" long, mirror 1 1/4" x 1 3/8".

★GA-52-1 Extra mirror for above tool.



11 BIG FEATURES

MAKE

Blue-Point

ELECTRIC DRILLS

THE BEST TO OWN AND USE

A 3-Jaw Jacobs Chucks used on Blue-Point drills are heavier than those used on most drills . . . your assurance of long service life. Threads on the spindle shaft are precision ground to fit perfectly and insure minimum chuck runout.

B Ball Bearing Construction. Blue-Point drills are 100% ball bearing equipped except models ED-10, ED-64, ED-76, and ED-89. These four models have ball bearings plus a bronze bearing after the intermediate gear. Ball bearings are permanently lubricated and sealed from dust and grit.

C Cast Aluminum Housing. Gives great strength with light weight . . . well rounded corners make them comfortable to operate. Removable pipe handle is furnished on the larger models.

D Spade Type Swivel Handle on the larger models is easily adjustable to any position or removed entirely for use in drill stands. One screw mounted in the pinch type band **E** makes this speedy adjustability possible.

F Cartridge Type Brush Holders flush with the case are easily accessible and removable to facilitate brush inspection or replacement.

G Heavy Duty Cable is 3-conductor type with unbreakable plug. Rubber covered and treated to resist oil, grease and wear.

H Cable Strain Reliever prevents the cable from kinking and breaking where it enters the handle. Constructed of spring wire and threaded into the handle instead of being pinched in. It can be retightened with a wrench.

I Convenient Trigger Type Switch, two-pole type, is incorporated in the pistol grip handle of all models for greatest operating ease. A switch lock **J** with quick release is also provided.

K Extra Powerful Motor. The universal 115-volt AC-DC motor in each Blue-Point Drill is heavier and more powerful than motors in competitive drills of equal capacity. This extra power means greater starting torque plus added stamina for rugged work.

L Superior Cooling Features. The construction of Blue-Point drills and an extremely efficient fan make them cool running. The fan sucks in cool air through the rear ventilating ports, around the motor and out of the front ports away from the operator. Chips and dirt are blown away from the drill.

M Helical Gears Throughout are machined of chrome molybdenum steel, helical cut for greater tooth contact and smoother operation, carefully heat-treated to give maximum service

Models: ED-25, ED-26, ED-32, ED-38.

At Top—Model ED-24A

BLUE-POINT ELECTRIC DRILLS

MIDGET 1/4" ELECTRIC DRILL

Model ED-24A. Here is a little drill that packs a lot of power and punch, yet is so compact that you can hold it in the palm of your hand. It is so small, only 8 1/2" long, that you can bring drilling speed and power into the closest places—gets in wherever your fist will fit. A great favorite with men and women doing assembly work requiring fast accurate drilling operations. Equipped with 7B 1/4" capacity Jacobs chuck, K11-7 key and 7 1/2 feet of 3-conductor cable and plug.

STANDARD 1/4" CAPACITY DRILL

Model ED-25. The ideal drill for truck and auto body repair shops. May be used with twist drills, wood augers, hole saws, etc. Delivers plenty of drilling power yet is light weight. Equipped with 7B 1/4" capacity Jacobs chuck, K11-7 chuck key and 15 feet of 3-conductor cable and plug. See specifications below.

HEAVY DUTY 1/4" CAPACITY DRILL

Model ED-26. A sturdy, powerful drill for constant heavy duty work. Built for production and assembly lines as well as for garages where it is widely used for drilling frames, fenders, motor blocks, etc. You'll like the extra power, fine balance and trouble-free performance it will render. Equipped with 7B 1/4" capacity Jacobs chuck, K11-7 chuck key and 15 feet of 3-conductor cable and plug. Specifications are given in the table below.

HEAVY DUTY 5/16" CAPACITY DRILL

Model ED-32. A full powered drill for all purpose production use. Compact design and light weight, only 7 1/4 pounds, combine to make it a favorite for plant maintenance and repair work. Equipped with 30B 5/16" capacity Jacobs chuck, K11-30 chuck key and 15 feet of 3-conductor cable and plug. See table below for the specifications of this drill.

STANDARD 3/8" CAPACITY DRILL

Model ED-38. This is a general purpose drill that has found wide acceptance in garage and machine shops. It combines the power factor and extra chuck capacity for larger, heavier work with the light weight, balance and design of the smaller sizes of drills. Equipped with 2B 3/8" capacity Jacobs chuck, K11-2 chuck key and 15 feet of 3-conductor cable and plug. See specifications below.

SPECIFICATIONS FOR ABOVE DRILLS

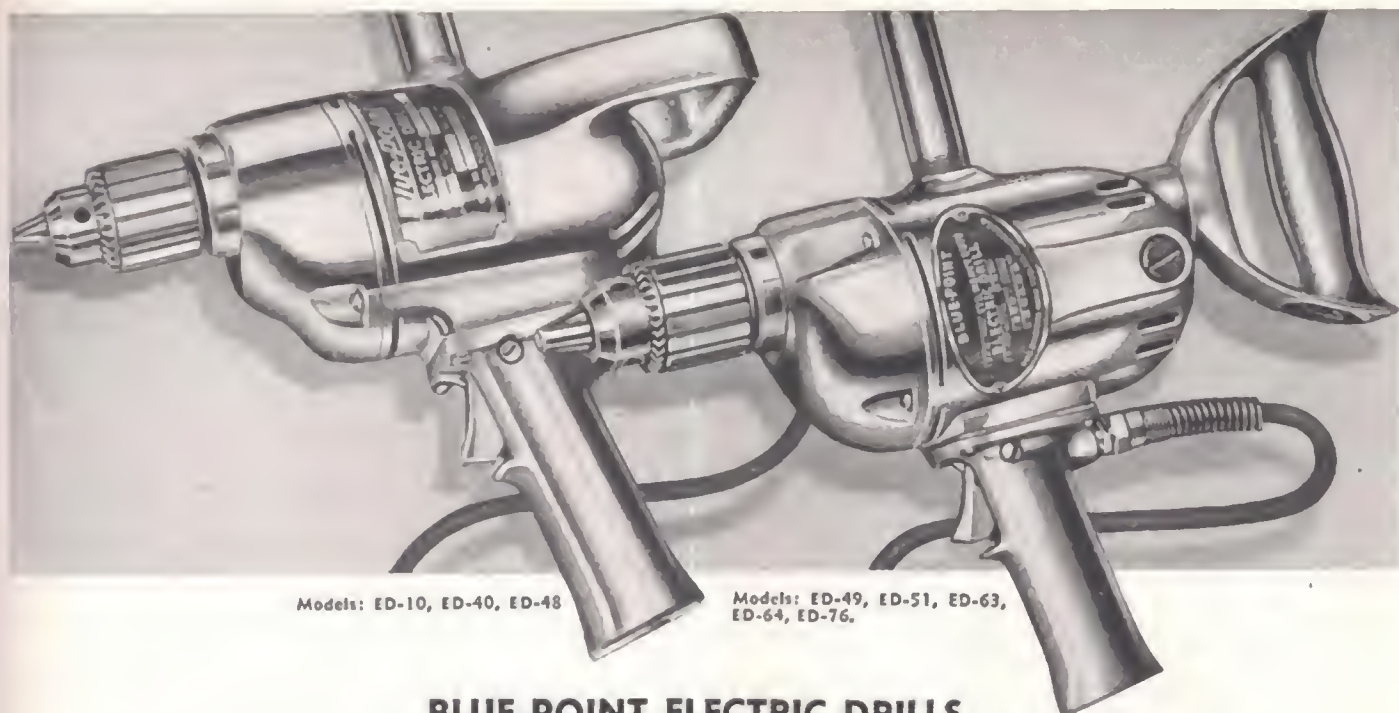
Stock No.	ED-24A	ED-25	ED-26	ED-32	ED-38
Jacobs Chuck	7B 3/8"-24	7B 1/4"-24	7B 1/4"-24	30B 5/16"-24	2B 3/8"-24
Capacity: In Steel	1 1/2"	1 1/2"	1 1/2"	3 1/4"	3 1/2"
Capacity: In Hardwood	1 1/2"	1 1/2"	1 1/2"	3 1/2"	4 1/4"
Speed: No Load (RPM)	1700	2300	1900	1400	800
Speed: Full Load (RPM)	1100	1600	1600	1100	400
Net Weight (lbs.)	3 1/4	5	7	7 1/4	7 1/2
Overall Length	8 1/2"	11"	12"	12 1/4"	12"

Other voltages available on special order. Specify voltage and cycle.

KEYS FOR JACOBS CHUCKS

The Jacobs chuck keys listed below with the exception of the No. 4 are equipped with a patented Rubber-Flex Key holder for attaching to the cord of any electric drill. Affords a means of attaching the key where it will be handy for use.

Stock No.	Fits Chuck
KH-1	1B
KH-2	2B
KH-3	3B, 34B
No. 4	34B
KH-7	7B
KH-30	30B
KH-12	32B, 33B



Models: ED-10, ED-40, ED-48

Models: ED-49, ED-51, ED-63,
ED-64, ED-76.

BLUE-POINT ELECTRIC DRILLS

HEAVY DUTY 3/8" CAPACITY DRILL

Model ED-40. A sturdy drill for parts assembly lines, maintenance departments, construction crews, etc., where the work demands a heavy duty drill with a small chuck capacity. An all ball bearing drill . . . bearings sealed in housing to prevent entrance of grit and dirt . . . permanently lubricated . . . bearing seats precision bored. Threaded-in cable strain reliever prevents cable from kinking and breaking. Rear handle is solid with the housing. . . Top pipe type handle is detachable.

Equipment includes a No. 32B Jacobs 3-Jaw chuck, KH-32 chuck key and 10 feet of 3-conductor cable and plug. See table below.

GENERAL PURPOSE 1/2" CAPACITY DRILL

Model ED-10. Our lightest 1/2" drill but having all the power necessary for general purpose use. Horizontal back handle is cast in line with the chuck for easier handling . . . top handle is removable. Powerful motor is mounted on ball bearings sealed from dust and grit. Chrome molybdenum gears are helical cut for smooth transmission of power and are mounted on sleeve bearings. Chuck spindle threads are ground to give accurate mounting and a true running chuck. Trigger may be locked in "on" position.

Equipment includes a 33-B 1/2" capacity 3-jaw Jacobs chuck and key, and 7 1/2 feet of 3-conductor rubber covered cable and plug. General specifications are shown below.

STANDARD 1/2" CAPACITY DRILL

Model ED-48. A light weight, compact drill that will prove most efficient for all general shop work. The horizontal back handle is cast integral with the motor housing and is in a direct line with the chuck and hit for better balance and consequently easier operation. The powerful 115 Volt AC-DC motor has armature, spindle and gear shafts supported by free, easy-running ball bearings which have permanently sealed-in lubrication giving years of smooth, trouble-free service. All gears are of chrome molybdenum steel carefully heat treated to correct hardness for maximum service under all working conditions. Ground thread on chuck spindle for true running chuck. The spring strain reliever is screwed into the handle to prevent cable damage by kinking and abrasion.

Equipment includes a No. 33B 1/2" capacity 3-jaw Jacobs chuck, KH-32 chuck key and 15 feet of 3-conductor rubber covered cable and plug. See table below for complete specifications.

SPECIAL DUTY 1/2" CAPACITY DRILL

Model ED-49. Ideal for general intermittent drilling operations in garages, shops, service stations, etc. This drill has plenty of power yet is very compact and light in weight. Ground spindle threads for accurate mounting and truer running chuck. Equipped with a No. 34B 3-Jaw Jacobs chuck, KH-3 chuck key and 15 feet of 3-conductor cable and plug. Table below gives complete specifications.

HEAVY DUTY 1/2" CAPACITY DRILL

Model ED-51. A constant service 1/2" capacity drill much in demand in railroad shops, building and other heavy equipment industries. It is built to stand the "gaff" on the toughest drilling jobs. Its excess power assuring longer motor life. Detachable spade type handle on the rear, removable pipe type handle on the top. Ball bearing throughout, all bearing seats precision bored. Complete with No. 34B 3-jaw Jacobs chuck, KH-3 chuck key and 15 feet of 3-conductor cable and plug. Specifications are given below.

STANDARD 5/8" CAPACITY DRILL

Model ED-63. The chuck capacity, power and handle arrangements make this model one of the most popular all-purpose drills. Ideal for use with accessories such as hones, circular hole saws, cylinder grinders, wire brushes, etc. Detachable swivel spade type handle on rear and removable handle on top permits drilling in any direction with greater ease and accuracy. Equipped with No. 3B Jacobs 3-jaw chuck, KH-3 chuck key and 15 feet of 3-conductor cable and plug. Complete specifications are shown below.

HEAVY DUTY 5/8" CAPACITY DRILL

Model ED-64. Built for heavy work where power and extra chuck capacity are required. Built to give many years of satisfactory service. Here is a drill you can rely on for hard continuous service in shops or on production lines. Equipped with No. 3B Jacobs 3-Jaw chuck, KH-3 chuck key and 15 feet of 3-conductor cable and plug. Table below gives specifications.

HEAVY DUTY 3/4" CAPACITY DRILL

Model ED-76. A powerful, large capacity drill for all heavy work in the shop or out on the job. Designed and built to give rugged service with maximum life. The ideal tool for the truck body builder. Equipped with No. 36B 3/4" capacity, 3-Jaw Jacobs chuck, No. 4 chuck key and 15 feet of 3-conductor cable and plug. Specifications are listed below.

HEAVY DUTY 7/8" CAPACITY DRILL

(Not Illustrated)

Model ED-89. A rugged, powerful drill that will prove extremely useful in steel fabrication, construction, railroad and other heavy machinery fields. No matter what your drilling requirements may be, whether in metal, wood, marble or tile, the ED-89 has the necessary power and stamina to handle all of them. Equipped with a No. 2 Morse taper socket for taper shank drill bits and 15 feet of 3-conductor cable and plug. See table below for specifications.

Specifications For All Drills on This Page

Stock No.	ED-40	ED-10	ED-48	ED-49	ED-51	ED-63	ED-64	ED-76	ED-89
Jacobs Chuck	32B 1 1/8"-20	33B 1 1/2"-20	33B 1 1/2"-20	34B 1 3/8"-16	34B 1 3/8"-16	3B 5/8"-16	3B 5/8"-16	36B 3/4"-16	.....
Capacity: In Steel	3/8"	1/2"	1/2"	1/2"	1/2"	1 1/8"	1 1/8"	1 1/2"	1 3/4"
Capacity: In Hardwood	1"	1"	1"	1"	1"	1 1/8"	1 1/8"	1 1/2"	1 3/4"
Speed: No. Load (Rpm)	900	450	500	550	550	500	450	400	400
Speed: Full Load (Rpm)	500	300	350	350	350	300	290	260	235
Net Weight (lbs.)	9	8	9	10 1/4	15 1/4	13	22	24	25
Overall Length	11 1/2"	10 1/2"	11 1/2"	15"	15 1/4"	15 1/4"	19"	19 1/4"	18 1/4"

Other voltages available on special order. Specify voltage and cycle.

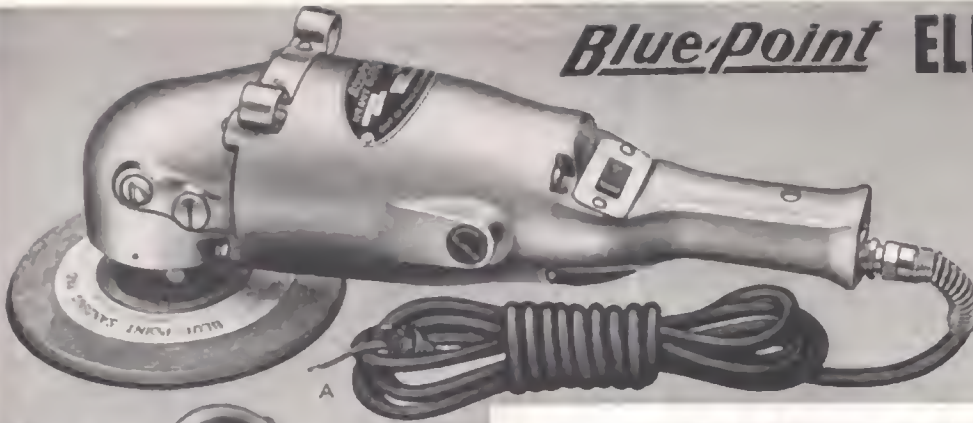
Electric Tool Guarantee

Every Snap-on or Blue-Point electrically driven tool is thoroughly tested under load and checked for possible electrical and mechanical defects before leaving our plants. We will gladly replace without cost, any parts of a tool which we find defective in material or workmanship, provided the tool is returned to the nearest Snap-on branch with all transportation charges prepaid, and provided that no other repair work has been performed by others.

SNAP-ON TOOLS CORPORATION

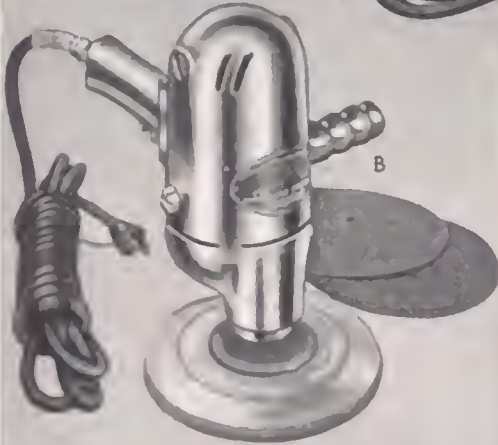
Blue-point ELECTRIC TOOLS

FOR THE BEST
SANDING
AND
POLISHING
PERFORMANCE



7" HEAVY DUTY ELECTRIC DISC SANDER

(A) ES-7A Disc Sander. This sander is designed for fast, smooth operation and long life. All moving parts are mounted on ball bearings permanently lubricated and sealed from dirt and dust. All gears are machined from chrome molybdenum steel heat treated to wear resistant hardness. A powerful fan sucks cool air through the end of the handle at a point farthest away from the operation and a series of baffles strain out any dust or grit. Air is expelled through front ports keeping the work free from grindings. A spindle lock incorporated in the head of the sander prevents the spindle from turning while the disc retaining nut is being removed or tightened. Streamlined aluminum housing, detachable side handle and safety type "off-on" switch. Standard equipment includes 15 feet of three-conductor rubber covered cord with screw-in type strain reliever, one backing pad, three abrasive discs and special wrench. Pad diameter is 7", spindle size $\frac{5}{8}$ " — 11 thread, no load speed 5000 RPM, overall length 16". Operates on 110 volt AC or DC. Weight 12 $\frac{1}{4}$ lbs.



7" HEAVY DUTY VERTICAL DISC SANDER

(B) ES-207 Disc Sander. For those who prefer vertical construction, here is a disc sander that has been designed in every detail for maximum operating efficiency regardless of the surface on which it is used. Vertical spindle construction permits the power to be transmitted in a straight line from the motor to the spindle . . . eliminates bevel gears thus contributing to quieter operation and making a more compact tool. Reduction gears are made of alloy steel, helical cut for greater tooth contact, carefully hardened and amply lubricated to provide long trouble-free operation. Cast aluminum housing provides strong, lightweight protection for the powerful motor. Large pistol grip handle is fitted with a trigger-type switch and lock for continuous operation. A spindle lock is also incorporated to facilitate pad installation. The side handle threads into either side of the housing for right or left hand operation. The powerful air cooled motor is AC-DC type operating on 110 volt, 25-60 cycles. Equipment includes one 7" sanding pad, 3 sanding discs and 15 feet of 3-conductor cable and plug with screw-in cable strain reliever. Spindle size is $\frac{5}{8}$ " — 11 thread, no load speed 5200, load speed 4500 and weight 14 $\frac{1}{2}$ lbs.



9" VERTICAL POLISHER

(C) EP-109 Polisher. Here is the ideal tool for obtaining a hard, brilliant finish on all types of surfaces. Particularly suited for automotive use it makes fast work of buffing liquid power polishes and other types of auto finish protectors. Has the same construction features as the ES-207 Disc Sander above. Equipment includes a 9" backing pad, 10" lamb's wool bonnet and 15' of 3-conductor cable and plug with screw-in cable strain reliever. Spindle diameter $\frac{3}{4}$ " — 11 thread, no load speed 1000, load speed 700, weight 10 lbs.



COMBINATION DRILL—SANDER—POLISHER

(D) ED-341 Triple Tool. It's light . . . rugged . . . powerful . . . and you get three tools for the price of one when you buy this combination drill, sander, and polisher. It's a fine tool for intermittent sanding, polishing, and drilling of wood, metal, or plastics.

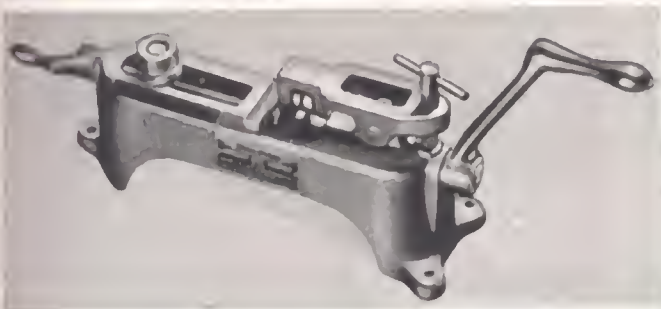
Changing from one unit to the other is just a matter of seconds. A push button locks the spindle, making it easy to remove and replace sanding discs, backing pad, or drill chuck. The powerful motor gives the tool a drilling capacity of $\frac{1}{4}$ " in metal and $\frac{1}{2}$ " in hard wood. Pad diameter is 5".

The powerful 110 volt AC/DC motor is 100% ball bearing with reduction gears helically cut for smooth, quiet operation, and carefully hardened for long life. Free running speed is 2300 r.p.m. The cast aluminum case provides light weight with plenty of strength, and the large pistol-grip handle is attached at just the right angle for easy operation. Trigger type switch has a positive lock for continuous operation. A cable strain reliever prevents the 10 feet of 3-conductor cable from kinking and breaking where it enters the handle.

Equipment includes a 7-B $\frac{1}{4}$ " capacity Jacobs chuck, a KII-7 key and patent holder, a 5" backing pad, a 5" lamb's wool bonnet, and three 5" sanding discs. Spindle size is $\frac{3}{4}$ " — 24 thread.

NOTE: Models of all the above machines designed for other voltages are available on special order. Specify current, voltage and cycle when ordering special models.

ACCESSORIES FOR DRILLS-SANDERS-POLISHERS

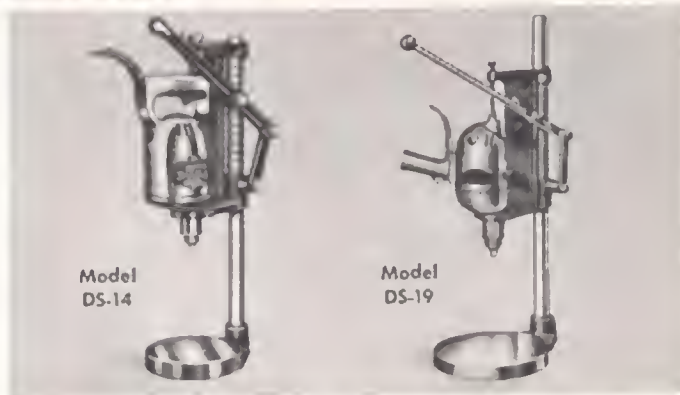


SNAP-ON SANDING DISC TRIMMER

A-88 Sanding Disc Trimmer. Cut disc costs with this abrasive disc trimmer. This money-saving machine makes one disc do the work of many . . . saves its cost several times in a few months by letting you trim worn discs down to fit smaller size pads and using up every inch of effective sanding surface. Any desired amount from $\frac{1}{8}$ " up to 1" can be trimmed off at one time and you get a perfectly shaped circle with sharp, firm edges.

The Snap-on Abrasive Disc Cutter handles both $\frac{1}{2}$ " and $\frac{3}{4}$ " hole discs up to 9" in diameter and is constructed for superior service. Can also be used to trim sanding belts. Cutter wheel is keyed onto the shaft and cannot slip. Gripper roll is adjustable to give proper roller tension for any disc thickness. Three-leg construction of the housing gives wobble-free mounting on uneven bench surfaces.

★A-88-6 Replacement Cutter Wheel.



BLUE-POINT ELECTRIC DRILL STANDS

Convert your electric drill into a drill press for heavy duty and very accurate work. Each of the two bench stands listed below accommodates several drill models which are mounted quickly without use of adaptors. Precision-machined groove and slide give complete accuracy throughout drilling stroke. Drill holder adjusts for height and swings to position required. Base drilled for mounting.

DS-14 Drill Stand. For Models ED-25, ED-26, ED-32, and ED-38 (Page 66). Smaller than Model DS-19. Center of drill bit to column center is $3\frac{3}{4}$ ".

DS-19 Drill Stand. For Models ED-10, ED-40, ED-48, ED-49, ED-51, ED-63, ED-64 and ED-76 (page 67). Center of drill bit to column center 7".



A

POLISHING PAD

★SZ-72-1 Polishing Pad. A 7" felt pad having the necessary softness for a perfect polishing job. This pad has a fiber backing and is attached to the sanding disc pad in the same manner as you would a regular sanding disc.

WOOL BUFFING BONNETS

★B Buffing Bonnets. Lambs wool, tanned and treated. Canvas side walls have drawstrings for attaching the bonnet to the pad.

- ★WB-6 6" Buffing Bonnet
- ★WB-8 8" Buffing Bonnet
- ★WB-10 10" Buffing Bonnet



B

SANDING PADS

★C We recommend the use of these pads for heavy duty sanding operations. They have great resilience for faster sanding and perfect feather edging. The DSP-53 fits $\frac{3}{8}$ "-24 thread spindles, the other three pads fit $\frac{3}{8}$ "-11 thread spindles.

- ★DSP-53 5" Sanding Pad
- ★DSP-5A 5" Sanding Pad
- ★DSP-7A 7" Sanding Pad
- ★DSP-9A 9" Sanding Pad



C

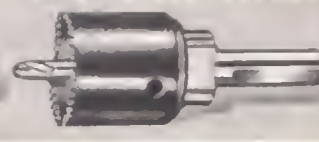
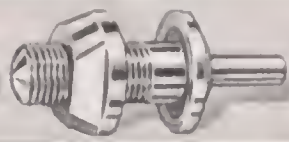
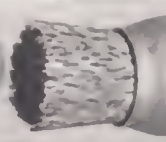
SANDING DISCS

★D The vulcanized cloth backing allows maximum flexibility in use and is treated to make it water resistant. The aluminum oxide grit is bonded to the backing by a special phenolic adhesive and is guaranteed not to loosen due to heat or moisture. Available in a variety of grits in 5", 7" and 9" diameters.



D

Ar- bor Size	Grit	5" DISCS Stock No.	7" DISCS Stock No.	9" DISCS Stock No.
$\frac{1}{2}$ "	16	★SD-7165	★SD-9165	★SD-9165
$\frac{3}{4}$ "	16	★SD-7167	★SD-9167	★SD-9167
$\frac{1}{2}$ "	24	★SD-7245	★SD-9245	★SD-9245
$\frac{3}{4}$ "	24	★SD-7247	★SD-9247	★SD-9247
$\frac{1}{2}$ "	36	★SD-7365	★SD-9365	★SD-9365
$\frac{3}{4}$ "	36	★SD-7367	★SD-9367	★SD-9367
$\frac{1}{2}$ "	50	★SD-7505	★SD-9505	★SD-9505
$\frac{3}{4}$ "	50	★SD-7507	★SD-9507	★SD-9507
$\frac{1}{2}$ "	60	★SD-7605	★SD-9605	★SD-9605
$\frac{3}{4}$ "	60	★SD-7607	★SD-9607	★SD-9607
$\frac{1}{2}$ "	80	★SD-7805	★SD-9805	★SD-9805
$\frac{3}{4}$ "	80	★SD-7807	★SD-9807	★SD-9807
$\frac{1}{2}$ "	100	★SD-71005	★SD-91005	★SD-91005
$\frac{3}{4}$ "	100	★SD-71007	★SD-91007	★SD-91007



WIRE CUP BRUSHES

Spiral twist cup brushes, designed for use with portable electric disc sanders. Can be safely operated at high speed. Fitted with a $\frac{3}{8}$ "-11 thread bushing welded integrally for mounting direct to spindle . . . fits sanders shown on page 68. The fine quality steel wire used is inserted in twisted tufts for greatest strength and durability.

- ★A-2464 Cup Brush $3\frac{1}{2}$ " diameter
- ★A-2465 Cup Brush 6" diameter

CARBON BRUSHES

★A-2 Standard Carbon Brush. Fits $\frac{1}{4}$ " electric Drill. Made of crimped, bright music wire.

★A-7 Spiral Twist Carbon Brush. Tightly twisted spirals of high quality .020" steel wire. Brush diameter $1\frac{1}{8}$ ", stem diam. is $\frac{1}{4}$ ".

ARBOR ADAPTOR

A-24 Arbor Adaptor. Adapts electric drills to light grinding and wire brushing. $\frac{1}{2}$ " diameter arbor—use with brushes and wheels up to 4" diameter.

CIRCULAR HOLE SAWS

The high speed steel blades are interchangeable on two sizes of mandrels—each of which is fitted with a $\frac{1}{4}$ " pilot drill. Shank fits $\frac{1}{2}$ " drill chuck. The saw blade is spot welded around the outside of the flange and can be used the full depth of the tool.

HS-31 Mandrel. Fits hole saws $\frac{3}{8}$ " to $1\frac{1}{4}$ " diameter.
HS-33 Mandrel. Fits hole saws $1\frac{1}{2}$ " to 2" diameter.

Number	Dia.	Number	Dia.	Number	Dia.
★HS-20-A	$\frac{1}{2}$ "	★HS-36-A	$1\frac{1}{2}$ "	★HS-52-A	$1\frac{1}{2}$ "
★HS-24-A	$\frac{3}{4}$ "	★HS-40-A	$1\frac{3}{4}$ "	★HS-56-A	$1\frac{3}{4}$ "
★HS-28-A	$\frac{1}{2}$ "	★HS-44-A	$1\frac{1}{2}$ "	★HS-60-A	$1\frac{1}{2}$ "
★HS-32-A	$1\frac{1}{2}$ "	★HS-48-A	$1\frac{1}{2}$ "	★HS-64-A	2"

*Not carried in stock. Shipped on special order.

A NEW FAST WAY TO REMOVE BROKEN THREADED ENDS OF SCREWS, STUDS, PIPE AND PIPE FITTINGS



Three Steps In Extracting



No. 1020 Extractor Set. Contains one each of all the Drill Guides, Extractors and Special Drills listed at right. Extractions can be made up to 1" below surface. Set includes case 1020-B shown above.

These tools are straight from end to end . . . when driven into a drilled hole in the broken unit, they grip without reaming or slipping, and furthermore, will not expand or distort sidewalls of holes no matter how thin or how far the tool is driven in. Tightly embedded broken threaded ends can now be drilled out to thin walled shells, safely seized with one of these tools and easily turned out. This is the only basically correct method of doing the job . . . tapered extractors often expand the broken unit making it bind tighter than it did before.

1. A small hole is first drilled in the broken screw (Fig. 1); if the screw is broken below the surface the correct size guide is used to center the drill (Fig. 4).
2. The hole is enlarged to proper size to accept the extractor tool (Fig. 2 and

Fig. 5) . . . correct drill sizes are shown under "Extractors."

3. The drill is removed and the extractor is driven into the drill hole (Figures 3 and 6) and the broken end quickly turned out.

DRILL GUIDES

No.	O.D.	I.D.	Length	Use Drill
921	$\frac{1}{8}$ "	$\frac{1}{16}$ "	$1\frac{1}{2}$ "	$\frac{1}{8}$ "
1021	$\frac{3}{16}$ "	$\frac{1}{8}$ "	$1\frac{1}{2}$ "	$\frac{3}{16}$ "
1121	$\frac{1}{2}$ "	$\frac{3}{8}$ "	$1\frac{1}{2}$ "	$\frac{1}{2}$ "
1221	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$1\frac{1}{2}$ "	$\frac{5}{8}$ "
1321	$\frac{3}{4}$ "	$\frac{7}{8}$ "	$1\frac{1}{2}$ "	$\frac{3}{4}$ "
1421	$\frac{7}{8}$ "	$1\frac{1}{8}$ "	$1\frac{1}{2}$ "	$\frac{7}{8}$ "
1521	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	$1\frac{1}{8}$ "
1621	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{1}{4}$ "
1721	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "	$1\frac{3}{8}$ "
1821	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "

SCREW EXTRACTORS

No.	Screw Dia.	Use Drill	Flute Dia.	Length
1	$\frac{1}{8}$ "	$\frac{1}{8}$ "	.139	$2\frac{1}{2}$ "
2	$\frac{3}{16}$ "	$\frac{3}{16}$ "	.205	$2\frac{3}{4}$ "
3	$\frac{1}{4}$ "	$\frac{1}{4}$ "	.272	$3\frac{1}{8}$ "
4	$\frac{5}{16}$ "	$\frac{5}{16}$ "	.338	$3\frac{3}{8}$ "
5	$\frac{3}{8}$ "	$\frac{3}{8}$ "	.374	$3\frac{3}{4}$ "

Each extractor is equipped with a specially designed hexagon nut for convenient turning with standard wrenches.

FRACTIONAL DRILLS

Size	Length
$\frac{1}{8}$ "	$2\frac{3}{4}$ "
$\frac{3}{16}$ "	$3\frac{1}{2}$ "
$\frac{1}{4}$ "	4"
$\frac{5}{16}$ "	$4\frac{1}{2}$ "
$\frac{3}{8}$ "	$4\frac{3}{4}$ "

To prevent errors please order individual units by description as well as by tool stock number.

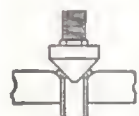


DOUBLE FLARING TUBING TOOL

**Makes 45° Double Flares
Faster and More Accurate**

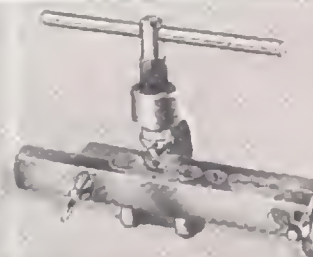


Use adaptor to bell the tubing and then remove adaptor.



Next apply cone action to tubing and obtain 45° double flare.

★93-FB Double Flaring Tool Set. Economical, speedy, easy-to-operate! Makes accurate 45° double-flares on thin wall, seamless, butt or lap welded, soft steel tubing, (such as Bundy) up to .035" thick, for S. A. E. flare and inverted flare joints. Handles $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " O. D. thin wall steel tubing. Will also make single or double flares on copper or aluminum tubing. Insures tube against cracking or splitting by folding back the end to make a flare with double thick, double strength walls. The forged steel yoke is equipped with swivel cone which reduces friction when flaring. In close quarters, rod handle can be removed and a wrench used on the $\frac{1}{4}$ " square head of the cone screw. Complete tool includes flaring bar, yoke, and 5 adaptors.



Single Flaring Tool With Slip-on Yoke

TF-7 Flaring Tool. Seven different tubing sizes from $\frac{3}{16}$ " to $\frac{5}{8}$ " can be flared with this tool . . . a wider range than previous models. It offers exceptional ease and speed of operation due to the construction of the yoke which slips over the bar without twisting or turning. As the bottom is open, tubing flares can be made where there is little clearance between the nut and the end of the tubing. Handles soft copper, brass or aluminum tubing in $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " sizes . . . No need now to buy two tools to cover this range.



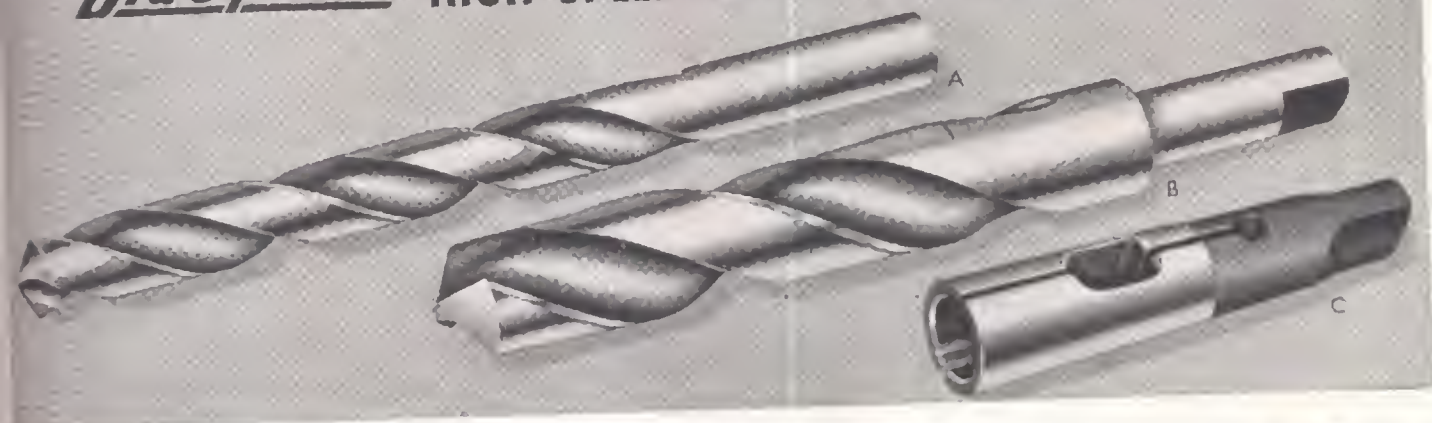
Tube Cutting is Easy With This Improved Tool

★TC-27 Tubing Cutter. End your tube cutting troubles with a Blue-Point Tube Cutter. It is one of the best tools of its kind—a combination of tube cutter and reamer and cuts any copper, brass, bronze, or similar tubing from $\frac{1}{8}$ " to 1" diameter.

The cutter wheel is made from exceptionally strong steel, and the very thin edge cuts cleanly through the entire thickness of the tubing—you don't have to wrestle the tube apart. The "V" blade at the back is used to ream off any burrs and leaves a clean smooth cut.

★TC-27-W Extra Cutter Wheel.

Blue-Point HIGH SPEED DRILLS STAY SHARP LONGER



[A] These fine quality drills are not single purpose drills for special work, but are made to do the best all around job in all classes of work. Made of finest quality high speed steel. They are expertly hardened and tempered by special processes to retain their sharpness for a long period of time. Precision ground to cut easily and accurately. For use in Electric Drills and power driven drill presses. To facilitate their safekeeping we offer sets in metal holders marked so you can quickly select the size drill you need.

Fractional Drills

Diam.	Decl. Equiv.	L'gth.	Diam.	Decl. Equiv.	L'gth.
★ 1/16	.0625	1 7/8	★ 1 1/2	.2000	4 1/2
★ 1/8	.1250	2 1/4	★ 1 3/4	.2125	4 3/4
★ 3/16	.1875	2 3/4	★ 1 7/8	.2250	4 7/8
★ 1/4	.2500	3 1/4	★ 2	.2500	5 1/4
★ 5/16	.3125	3 3/4	★ 2 1/4	.3125	5 3/4
★ 3/8	.3750	4 1/4	★ 2 1/2	.3750	5 7/8
★ 7/16	.4375	4 3/4	★ 2 3/4	.4375	6 1/8
★ 1/2	.5000	5 1/4	★ 2 7/8	.4625	6 1/4
★ 9/16	.5625	5 3/4	★ 3	.5000	6 3/4
★ 5/8	.6250	6 1/4	★ 3 1/4	.5625	7 1/8
★ 11/16	.6875	6 3/4	★ 3 1/2	.6250	7 3/8
★ 3/4	.7500	7 1/4	★ 3 3/4	.6875	7 7/8
★ 13/16	.8125	7 3/4	★ 4	.7500	8 1/4
★ 7/8	.8750	8 1/4	★ 4 1/4	.8125	8 3/4
★ 1 1/8	.9375	9 1/4	★ 4 1/2	.8750	9 1/8
★ 1 1/4	1.0000	10 1/4	★ 4 3/4	.9375	9 3/4
★ 1 3/8	1.0625	11 1/4	★ 5	1.0000	10 3/4
★ 1 1/2	1.1250	12 1/4	★ 5 1/4	1.0625	11 3/8
★ 1 5/8	1.1875	13 1/4	★ 5 1/2	1.1250	11 7/8
★ 1 3/4	1.2500	14 1/4	★ 5 3/4	1.1875	12 3/8
★ 1 7/8	1.3125	15 1/4	★ 6	1.2500	12 3/4
★ 2	1.3750	16 1/4	★ 6 1/4	1.3125	13 1/8
★ 2 1/8	1.4375	17 1/4	★ 6 1/2	1.3750	13 3/8
★ 2 1/4	1.5000	18 1/4	★ 6 3/4	1.4375	13 7/8
★ 2 1/2	1.5625	19 1/4	★ 7	1.5000	14 3/8
★ 2 3/4	1.6250	20 1/4	★ 7 1/4	1.5625	14 7/8
★ 2 7/8	1.6875	21 1/4	★ 7 1/2	1.6250	15 3/8
★ 3	1.7500	22 1/4	★ 7 3/4	1.6875	15 7/8
★ 3 1/8	1.8125	23 1/4	★ 8	1.7500	16 3/8
★ 3 1/4	1.8750	24 1/4	★ 8 1/4	1.8125	16 7/8
★ 3 1/2	1.9375	25 1/4	★ 8 1/2	1.8750	17 3/8
★ 3 3/4	2.0000	26 1/4	★ 8 3/4	1.9375	17 7/8
★ 4	2.0625	27 1/4	★ 9	2.0000	18 3/8
★ 4 1/8	2.1250	28 1/4	★ 9 1/4	2.0625	18 7/8
★ 4 1/4	2.1875	29 1/4	★ 9 1/2	2.1250	19 3/8
★ 4 1/2	2.2500	30 1/4	★ 9 3/4	2.1875	19 7/8
★ 4 3/8	2.3125	31 1/4	★ 10	2.2500	20 3/8
★ 4 3/4	2.3750	32 1/4	★ 10 1/4	2.3125	20 7/8
★ 4 7/8	2.4375	33 1/4	★ 10 1/2	2.3750	21 3/8
★ 5	2.5000	34 1/4	★ 10 3/4	2.4375	21 7/8
★ 5 1/8	2.5625	35 1/4	★ 11	2.5000	22 3/8
★ 5 1/4	2.6250	36 1/4	★ 11 1/4	2.5625	22 7/8
★ 5 1/2	2.6875	37 1/4	★ 11 1/2	2.6250	23 3/8
★ 5 3/4	2.7500	38 1/4	★ 11 3/4	2.6875	23 7/8
★ 6	2.8125	39 1/4	★ 12	2.7500	24 3/8

Wire Gauge Drills

No.	Decl. Equiv.	L'gth.	No.	Decl. Equiv.	L'gth.	No.	Decl. Equiv.	L'gth.
★ 1	.2250	3 7/8	★ 28	.1100	2 1/8	★ 55	.0520	1 5/8
★ 2	.2210	3 7/8	★ 29	.1080	2 1/8	★ 56	.0495	1 5/8
★ 3	.2130	3 3/4	★ 30	.1065	2 1/8	★ 57	.0470	1 5/8
★ 4	.2090	3 3/4	★ 31	.1050	2 1/8	★ 58	.0445	1 5/8
★ 5	.2055	3 3/4	★ 32	.1035	2 1/8	★ 59	.0420	1 5/8
★ 6	.2010	3 3/4	★ 33	.1020	2 1/8	★ 60	.0400	1 5/8
★ 7	.2010	3 3/4	★ 34	.1010	2 1/8	★ 61	.0380	1 5/8
★ 8	.1990	3 3/4	★ 35	.1000	2 1/8	★ 62	.0359	1 5/8
★ 9	.1965	3 3/4	★ 36	.0985	2 1/8	★ 63	.0370	1 5/8
★ 10	.1910	3 3/4	★ 37	.0970	2 1/8	★ 64	.0350	1 5/8
★ 11	.1890	3 3/4	★ 38	.0955	2 1/8	★ 65	.0350	1 5/8
★ 12	.1850	3 3/4	★ 39	.0945	2 1/8	★ 66	.0330	1 5/8
★ 13	.1820	3 3/4	★ 40	.0930	2 1/8	★ 67	.0320	1 5/8
★ 14	.1800	3 3/4	★ 41	.0920	2 1/8	★ 68	.0310	1 5/8
★ 15	.1770	3 3/4	★ 42	.0905	2 1/8	★ 69	.0292	1 5/8
★ 16	.1730	3 3/4	★ 43	.0890	2 1/8	★ 70	.0280	1 5/8
★ 17	.1690	3 3/4	★ 44	.0875	2 1/8	★ 71	.0260	1 5/8
★ 18	.1650	3 3/4	★ 45	.0860	2 1/8	★ 72	.0250	1 5/8
★ 19	.1610	3 3/4	★ 46	.0845	2 1/8	★ 73	.0240	1 5/8
★ 20	.1590	3 3/4	★ 47	.0830	2 1/8	★ 74	.0225	1 5/8
★ 21	.1570	3 3/4	★ 48	.0815	2 1/8	★ 75	.0210	1 5/8
★ 22	.1550	3 3/4	★ 49	.0800	2 1/8	★ 76	.0200	1 5/8
★ 23	.1530	3 3/4	★ 50	.0785	2 1/8	★ 77	.0190	1 5/8
★ 24	.1510	3 3/4	★ 51	.0770	2 1/8	★ 78	.0180	1 5/8
★ 25	.1495	3 3/4	★ 52	.0755	2 1/8	★ 79	.0165	1 5/8
★ 26	.1470	3 3/4	★ 53	.0740	2 1/8	★ 80	.0155	1 5/8
★ 27	.1440	3 3/4	★ 54	.0725	2 1/8			

COMBINATION SHANK DRILLS

[B] Highest quality high speed steel, specially hardened and tempered. Cutting edges ground for precision drilling. . . Drill holes up to 1" diameter with power tools equipped with 1 1/2" capacity chuck. . . Adaptor converts all sizes to No. 2 Morse taper shank for use in drill presses and lathes. . . Tang on end of shaft gives positive non-slip drive. . . Extra flute length—4 1/2"—due to shorter driving shank means longer drill life. . . Overall length 6" . . . Individually packed in clear plastic tubes to protect cutting edges.

[C] ★CS-5 Adaptor. Converts combination shank drills for use as No. 2 taper shank drills. Slips over shaft and engages the drill shaft tang.

Stock No.	Diam.	Decl. Equiv.	Stock No.	Diam.	Decl. Equiv.
★ CS-33	1/16"	.5150	★ CS-45	1 1/2"	.7031
★ CS-34	1/8"	.5312	★ CS-46	1 3/4"	.7187
★ CS-35	3/16"	.5469	★ CS-47	1 7/8"	.7344
★ CS-36	1/4"	.5625	★ CS-48	2"	.7500
★ CS-37	5/16"	.5781	★ CS-50	2 1/4"	.7812
★ CS-38	3/8"	.5937	★ CS-52	2 1/2"	.8125
★ CS-39	7/16"	.6094	★ CS-54	2 3/4"	.8437
★ CS-40	1/2"	.6250	★ CS-56	3"	.8750
★ CS-41	9/16"	.6406	★ CS-58	3 1/4"	.9062
★ CS-42	5/8"	.6562	★ CS-60	3 1/2"	.9375
★ CS-43	11/16"	.6719	★ CS-62	3 3/4"	.9687
★ CS-44	3/4"	.6875	★ CS-64	4"	1.0000

ADJUSTABLE HOLE CUTTERS

★HC-790 Bruno Hole Cutter Set. This set of two tools will cut holes from 3/8" to 2 1/2" in diameter and 1/8" to 3/4" deep in sheet metal, brass, copper, aluminum and deeper holes in plastics, wood and masonite. Simple to adjust to any diameter. Adaptable for use in low speed drill presses, low speed electric drills, hand drills or hand braces. Tool steel blades, heat treated shanks. Plastic case included in the set.

Stock No.	Size Shank	Capacity	Thickness Capacity	Pilot Drill	Co.
★HC-100	3/4"	5/8" to 1 1/2"	up to 1 1/2"	1 1/4"	
★HC-101	1"	1" to 2 1/2"	up to 2 1/2"	3/8"	

Extra Blades

★HC-100-1.....Blade for HC-100 Cutter
★HC-101-1.....Blade for HC-101 Cutter

HIGH SPEED DRILL SETS

[A] ★CS-80-B Combination Shank Drill Set. Contains 8 drills—CS-34, CS-36, CS-38, CS-40, CS-42, CS-44, CS-46, and CS-48 listed above. Complete in special HUOT metal case. Space is also provided in this case for the CS-5 No. 2 Morse Taper Shank Adaptor described above. . . adaptor is not included in set but can be purchased separately for morse taper chuck use.

H-108 Huot Indexed Case only.

[C] ★C-113 Fractional Drill Set. This set contains 13 drills sizes 1/16" to 1/4" inclusive in H-113 Holder. The drill holder is of steel and is hinged as shown. When open the two drill compartments drop forward where right sized drills can easily be selected. Each compartment has drill sizes marked on it.

H-113 Drill Holder only.

[E] ★C-129 Fractional Drill Set. 29 Drills 1/16" to 1/2" inclusive in H-129 Holder. Sturdy steel holder has hinged cover. When open the three drill compartments drop forward. Every individual drill compartment has size of drill stamped into metal, so the selection of right size drill is made easily.

★C-115 Fractional Drill Set. 15 drills 1/16" to 1/2" by 32nds, in H-129 Holder. A good basic set—can be filled in later.

H-129 Drill Holder only.

[D] ★CH-160 Wire Gauge Drill Set. This set contains 60 Straight Shank Wire Gauge Drills Nos. 1 to 60 neatly arranged in H-160 Metal Holder. This is the most convenient and safest way to keep drills. Each individual drill compartment is marked with drill size.

H-160 Drill Holder only.

Blue-Point

BENCH GRINDERS

These Construction Features
Guarantee Smoother, More
Powerful Operation.

• **COMPLETELY ENCLOSED MOTOR:** Super powered, precision balanced motors are enclosed to prevent dirt, grit, etc. from entering motor or bearings.

• **BALL BEARING CONSTRUCTION:** New oversize labyrinth grease sealed ball bearings used throughout, assure smooth, long lived motor operation.

• **CAPACITOR START MOTOR:** Uses a very low starting current . . . actually less than 15 amps is consumed.

• **INDUCTION RUN MOTOR:** Develops less heat in the windings—which makes it much more desirable for continuous operation.

• **LARGE WHEEL GUARDS:** Closed types on 1 H.P., $\frac{1}{2}$ H.P. and $\frac{1}{4}$ H.P. models allow use of special shape wheels or wire brushes and have rear outlet exhaust. Guards are fitted with chip breakers and are drilled for eye shields. No. 826 $\frac{1}{4}$ H.P. model has open type guards.

• **BELL TYPE CONSTRUCTION:** On 1 H.P., $\frac{1}{2}$ H.P. and $\frac{1}{4}$ H.P. models allows grinding of longer pieces.

• **STURDY TOOL RESTS:** Those on 1 H.P., $\frac{1}{2}$ H.P. and $\frac{1}{4}$ H.P. models are fully adjustable for any type of work with ample take-up for wheel wear. Those on No. 826 $\frac{1}{4}$ H.P. model adjust to wheel wear. All are easily removed.

• **LARGE RUGGED BASE:** Equipped with rubber feet to provide solid mounting free from vibration. Has recessed bolt openings for permanent mounting.

No. 826

No. 833AW

The superior features of these bench grinders make them the best we have ever sold . . . we believe them to be the finest available anywhere. They are large and heavily built to set solidly on the bench and eliminate vibration.

The capacitor start-induction run motors are designed for continuous operation . . . the capacitor start is an important feature providing quick starting on low current consumption while the induction run gives increased power, with cool running qualities for continuous heavy-duty service.

The extra wide enclosed type wheel guards now furnished as standard equipment on both sides of all 1 H.P., $\frac{1}{2}$ H.P. and $\frac{1}{4}$ H.P. Blue-Point Bench Grinders add greatly to the adaptability of these machines. Wide or special purpose grinding wheels and wire brushes can be interchanged with the standard wheels supplied with these bench grinders. The outer sections of the guards are quickly removed to permit changing the wheel. These enclosed type guards provide the fullest possible protection and the rear exhaust outlets can be connected to industrial exhaust systems. The chip breakers furnished with these machines are adjustable for wheel wear. Holes are provided in the guards for installation of the eye shields described on page 73. All models have wrinkled black enamel finish.

STANDARD MODELS AND EQUIPMENT

No. 895-G Standard 1 H.P. Capacity Grinder, complete with two ten inch diam. x 1" face grinding wheels—one fine, one coarse. All 1 H.P. models have lead wires for permanent wiring instead of a plug-in connection and cord.

No. 855-G Standard $\frac{1}{2}$ H.P. Capacity Grinder, complete with two seven inch diam. x 1" face grinding wheels—one fine, one coarse; and rubber covered 3-wire cord and plug.

No. 833A-G Standard $\frac{1}{4}$ H.P. Capacity Grinder, complete with two six inch diam. x 1" face grinding wheels—one fine, one coarse; and rubber covered 3-wire cord and plug.

No. 833AW-G Standard $\frac{1}{4}$ H.P. Capacity Grinder, complete with one six inch diam. x 1" face grinding wheel and one heavy duty wire wheel brush. Has rubber covered 3-wire cord and plug.

No. 826-F Standard $\frac{1}{4}$ H.P. Capacity Grinder, complete with two 6" diam. x $\frac{1}{2}$ " face grinding wheels—one fine, one coarse; and rubber covered 3-wire cord and plug.

Wiring: $\frac{1}{2}$ H.P., $\frac{1}{4}$ H.P. and $\frac{1}{4}$ H.P. Models only. Split phase and single A.C. models and 32 volt and 115 volt D.C. models have 3-wire cord and plug. Three phase A.C. models and 230 volt and 250 volt D.C. models have lead wires for permanent wiring. All have toggle switch in base.

Specifications for Standard Grinders

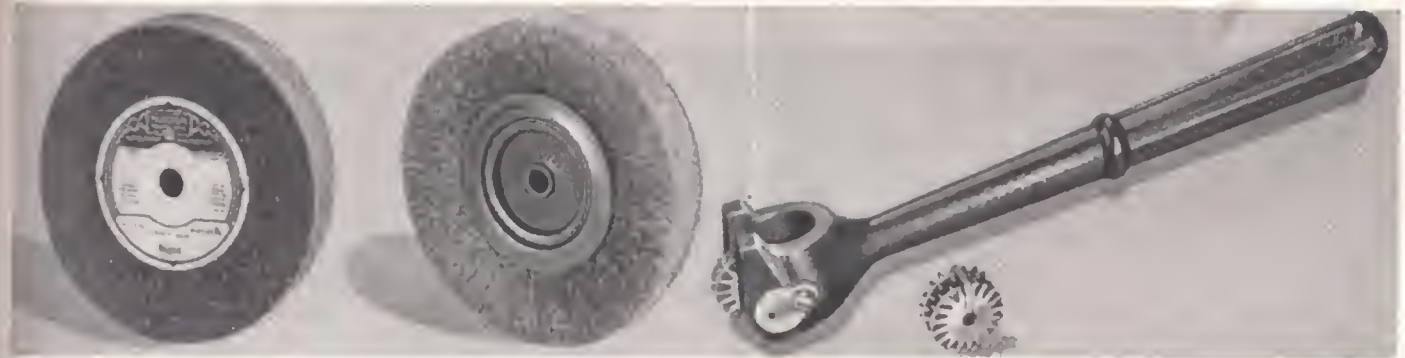
STANDARD MODELS	No. 895-G	No. 855-G	Nos. 833A-G and 833AW-G	No. 826-F
Motor Rating	1 H.P.	$\frac{1}{2}$ H.P.	$\frac{1}{4}$ H.P.	$\frac{1}{4}$ H.P.
No Load R.P.M. at 60 Cycles	1740	3450	3450	3450
Spindle Length	26 $\frac{1}{4}$ "	19 $\frac{1}{4}$ "	17"	12 $\frac{1}{2}$ "
Height to Spindle Center	9 $\frac{1}{2}$ "	6"	4 $\frac{1}{2}$ "	5"
Total Height	15"	12 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "
Wheel Size	10" Diam.	7" Diam.	6" Diam.	6" Diam.
	1 $\frac{1}{2}$ " Hole	$\frac{1}{2}$ " Hole	$\frac{1}{2}$ " Hole	$\frac{1}{2}$ " Hole
Net Weight	155 Lbs.	90 Lbs.	55 Lbs.	36 Lbs.

Standard and Special Bench Grinders Available

WE CANNOT SUPPLY ANY MODEL FOR 25 CYCLE CURRENT
READ CAREFULLY BEFORE ORDERING

When ordering please give the model number first and then the model type letter. Standard models are designed to operate on current which may fluctuate between 110 and 120 volts. Symbol Δ indicates "available at no extra cost." Symbol Δ "available at extra cost."

TYPES AND VOLTAGES	Model Type Letter	1 H.P. Model No. 895	$\frac{1}{2}$ H.P. Model No. 855	$\frac{1}{4}$ H.P. Models No. 833A and 833AW	$\frac{1}{4}$ H.P. Model No. 826
SPLIT PHASE 115 Volt 60/50 cycle	F	None	None	None	Standard
SINGLE PHASE 115 Volt 60/50 cycle	G	Standard	Standard	Standard	None
125 " " "	H	Δ	Δ	Δ	None
150 " " "	I	Δ	Δ	Δ	None
220 " " "	J	Δ	Δ	Δ	None
240 " " "	K	Δ	Δ	Δ	None
250 " " "	L	Δ	Δ	Δ	None
Other odd voltages	None	None	Δ	Δ	None
THREE PHASE 208-220/440 Volt 60/50 cycle	M	Δ	Δ	Δ	None
340 " " "	N	Δ	Δ	Δ	None
400 " " "	O	Δ	Δ	Δ	None
550 " " "	P	Δ	Δ	Δ	None
Other odd voltages	None	Δ	Δ	Δ	None
DIRECT CURRENT 32 Volt	Q	None	None	Δ	None
115 Volt	R	None	Δ	Δ	None
230 Volt	S	None	Δ	Δ	None
250 Volt	T	None	Δ	Δ	None



GRINDING WHEELS

Made from natural aluminous oxide abrasive . . . fully vitrified. Use 60 grit wheels for fine general grinding and 36 grit for rough work.

Stock No.	Diam.	Width	Grit	Arbor Hole
★11616	6"	1 1/2"	36	1 1/2"
★11699	6"	1 1/2"	60	1 1/2"
★12416	6"	1 1/2"	36	1 1/2"
★12410	6"	1 1/2"	60	1 1/2"
★11216	6"	1"	36	1 1/2"
★11250	6"	1"	60	1 1/2"
★11236-5	7"	1"	36	1 1/2"
★11260-5	7"	1"	60	1 1/2"
★11224	10"	1"	24	1 1/2"
★11246	10"	1"	44	1 1/2"
★11220	10"	1"	60	1 1/2"

WIRE WHEEL BRUSHES

Made of high quality, selected wire and metal, bound to prevent dangerous chips from flying loose—crimped wire bristles prevent bending or breaking and have extremely long wearing characteristics.

Standard Duty

Good quality, light weight brushes for intermittent, all-round use, but not quite as strong and durable as those on the right.

Heavy Duty

Built for heavy duty continuous service on all types of wire brushing jobs. Finest quality materials and workmanship.

Specify Arbor Size Required

No.	Diam.	Width	Arbor Hole
★A-33	6"	1 1/2"	1 1/2" to 2"
★A-34	8"	1 1/2"	1 1/2" to 2"
★A-35	10"	1 1/2"	1 1/2" to 2"
★A-36	12"	1 1/2"	1 1/2" to 2"

*Available on factory order only

WHEEL DRESSER

★WD-11 Wheel Dresser. With this tool, it takes only a few seconds to true up the face and remove the glaze from grinding wheels and you'll do a better, faster job with the cleaned wheel. Dresser is made extra strong to withstand the pressure exerted on the wheel and new cutters are easily inserted when old ones wear out. The hood over the cutters helps to protect the operator from flying grit. A new set of cutters can be easily inserted into the handle.

★WD-11-A. Set of extra cutters.



EYE SHIELDS

★S-60 Floodlight Eye Shield (Above left). Two 25 watt, 115 volt light bulbs in each shield flood work with direct light and provide visibility for safe work. Sturdy aluminum die cast frame has window opening 4" x 6" with top sheet of safety glass and bottom sheet of standard glass, easily replaced, if it becomes pitted. Easily attached to any grinder, adjustable up or down, but cannot be moved accidentally to a non-guard position. Mounting bolts included.

★S-60-1. Extra 25 Watt Light Bulb.

★S-69 Standard Eye Shields (Above right). Thick safety glass gives clear vision, with adequate protection from flying particles. Frame swivels to best working position for the job . . . easily attached to grinder.

DRILL GRINDING ATTACHMENTS

DG-10 Drill Grinding Attachment.

Sharpens any type of drill from 5/32" up to 1" diameter to the correct tip angle for efficient drilling in either soft or hard material. Attaches to any type grinder—power or manually operated. The quick swinging movement of the drill holder prevents burning the thin cutting edge while grinding and the finished job is a drill with . . . a perfectly centered point, both cutting edges running down at the same angle from the center, both heels swinging back at the correct arc from the cutting edge.

DG-30 Drill Grinding Attachment. Sharpens any drill from 3/32" to 1 1/2" in diameter with both lips ground identical in length, clearance and angle. Micrometer screw controls feed. Radial movement of the chuck via the swing handle controls lip clearance. The chuck trunnion is indexed for drill angles from 40° to 80°. Points 59° and 41° are noted on scale for fast adjustment of these popular cutting angles. Easily attached to any grinder and for any wheel thickness. A set-up gauge is included to assure alignment of grinder spindle and mounting bracket shaft prior to operation.



FLEXIBLE CARBON SCRAPER

★CS-1 Flexible Wire Carbon Scraper. Designed to do a quick, easy job and to give long and useful service. Ten blades made of highest quality oil tempered spring steel with flexibility controlled by a sliding ferrule. Makes cleaning of cylinder heads, blocks, valve parts, etc., very easy job.

WIRE BRUSH AND SCRAPER

★A-65 Hand Brush and Scraper. A refillable type of wire brush with metal handle and scraper attachment. Heavy crimped wire resists bending and breaking. Will outlast a number of the wood handle type.

★A-61. Crimped Wire Refill

★A-62. Straight Wire Refill

★A-63. Steel Scraper Blade

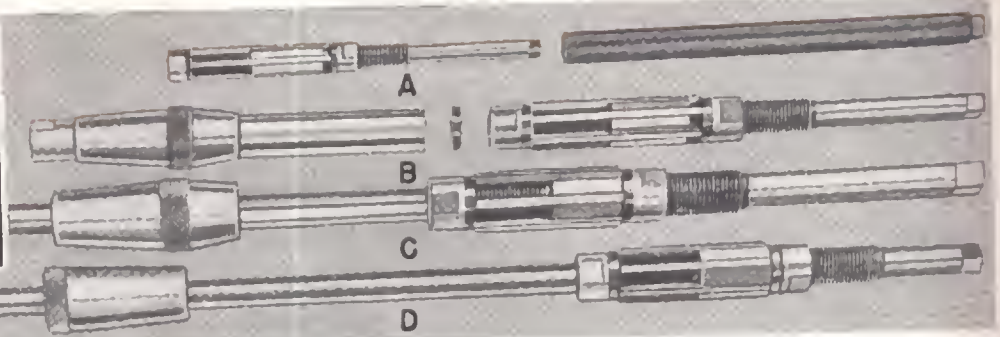
STANDARD WIRE BRUSH

★AC-58A Wire Brush. A good quality wood handle type of brush with bristles securely fastened into the wood to prevent their coming loose. This wire brush is carefully built of sturdy material throughout and offers an inexpensive tool that compares favorably with other makes of its kind.

GAS CLEANING BRUSHES

★GA-57A. Small Brush (1" dia.)
★GA-58A. Large Brush (2" dia.)

Blue-Point REAMERS ADJUSTABLE TYPE



ADJUSTABLE REAMERS FOR VALVE GUIDES

[A] These small adjustable reamers are ideal for valve guides, small bushings, etc. Carefully constructed, they are real precision tools—accurate to split thousandths. Reamers come complete with extension shanks or may be had as separate units.

Reamer with Extension			Reamer Only		Extension Only	
Stock No.	Size		Stock No.		Stock No.	
★ 385	1/4" — 1/2"		★ 8-A		385	
★ 396	3/8" — 1/2"		★ 7-A		386	
★ 387	1/2" — 5/8"		★ 6-A		387	
★ 396	5/8" — 3/4"		★ 5-A		388	
★ 399	3/4" — 7/8"		★ 4-A		389	
★ 400	7/8" — 1"		★ 3-A		390	
★ 401	1" — 1 1/8"		★ 2-A		391	

EXTRA LONG ALIGNING REAMERS

[D] One of the most frequent jobs on electric motors is the installation of new shaft bearings which must be line reamed to assure a smooth running motor. This can be done easily by putting the end bell in place on the motor frame and then reaming the bearings. In this manner you are assured of a true running motor with an extremely high percentage of bearing surface.

Stock No.	Size	Blade Length	Reamer Length
★ RL-437	1/4" — 1/2"	2"	13 1/4"
★ RL-500	3/8" — 1/2"	2"	15"
★ RL-552	1/2" — 5/8"	2"	15"
★ RL-825	5/8" — 3/4"	2"	16"
★ RL-856	3/4" — 7/8"	2"	16"
★ RL-687	7/8" — 1"	2"	17"
★ RL-750	1" — 1 1/8"	2"	18"
★ RL-781	1 1/8" — 1 1/4"	2"	18"
★ RL-812	1 1/4" — 1 1/2"	2"	19"
★ RL-875	1 1/2" — 1 3/4"	2"	19"
★ RL-937	1 3/4" — 2"	2"	20"
★ RL-1000	2" — 2 1/4"	2"	21"
★ RL-1031	2 1/4" — 2 3/4"	2"	21"
★ RL-1042	2 3/4" — 3"	2"	21"
★ RL-1125	3" — 3 1/4"	3"	24"
★ RL-1250	3 1/4" — 3 1/2"	3"	24"
★ RL-1375	3 1/2" — 3 3/4"	3"	24"
★ RL-1500	3 3/4" — 4"	3"	24"

LONG STYLE PILOT REAMERS

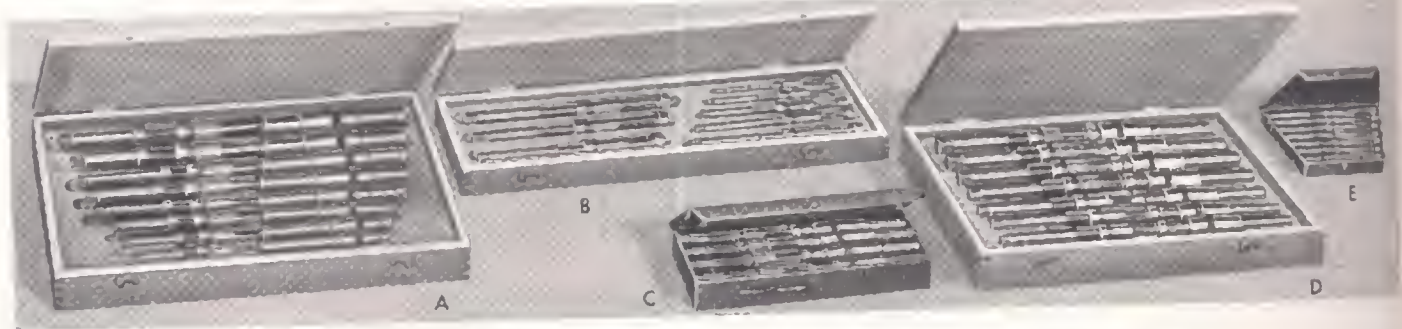
[C] Eliminate your reaming worries . . . get perfect alignment every time with these precision built Critchley type adjustable reamers. The blades are placed at the proper angle to give a smooth, shearing cut. Retaining collars at each end hold the blades firmly, protect the reamer nuts, and allow the reamer to be easily adjusted. Double-taper, counter-sunk bushings slide over the nut and collar of the reamer and follow after the blades as they are adjusted, making the reamer ideal for reaming short bushings.

Stock No.	Size	Lgth.	Stock No.	Size	Lgth.
★ RP-437	1/4" — 1/2"	9 1/4"	★ RP-915	1 1/2" — 1 3/4"	12 1/2"
★ RP-500	3/8" — 1/2"	9 1/4"	★ RP-945	1 3/4" — 1 7/8"	12 1/2"
★ RP-562	1/2" — 5/8"	9 1/4"	★ RP-1062	1 7/8" — 2"	12 1/2"
★ RP-625	5/8" — 3/4"	9 1/4"	★ RP-1125	2" — 2 1/4"	13"
★ RP-687	3/4" — 7/8"	12 1/4"	★ RP-1250	2 1/4" — 2 3/4"	13"
★ RP-730	7/8" — 1"	12 1/4"	★ RP-1375	2 3/4" — 3"	13"
★ RP-812	1" — 1 1/8"	12 1/4"	★ RP-1500	3" — 3 1/4"	13"
★ RP-860	1 1/8" — 1 1/4"	12 1/4"	★ RP-1625	3 1/4" — 3 1/2"	13"

SHORT STYLE REAMERS AND PILOTS

[B] Critchley type adjustable reamers . . . short style, with pilots available to convert them for line reaming use, as illustrated. Retaining collars at both ends hold the blades firmly yet allow the reamer to be adjusted easily. Staggered blades are placed at the correct angle for a perfect cut. Available in a complete range of sizes from 1/4" to 3 1/2". The bushing included with each pilot has a short taper for connecting rods and a long taper for piston pin and king bolt bushings.

Reamer Number	Pilot Number	Reamer Size	Blade Length	Overall Length	No. of Blades
★ RM-468	RMP-468	1 1/2" — 1 3/4"	2"	5 1/2"	6
★ RM-531	RMP-531	1 3/4" — 2"	2"	5 1/2"	6
★ RM-593	RMP-593	2" — 2 1/4"	2 1/4"	6 1/2"	7
★ RM-656	RMP-656	2 1/4" — 2 3/4"	2 1/4"	6 1/2"	7
★ RM-718	RMP-718	2 3/4" — 3"	2 1/4"	7 1/2"	7
★ RM-781	RMP-781	3" — 3 1/4"	3"	8 1/2"	7
★ RM-843	RMP-843	3 1/4" — 3 1/2"	3"	8 1/2"	7
★ RM-937	RMP-937	3 1/2" — 3 3/4"	3 1/2"	9 1/2"	7
★ RM-1062	RMP-1062	3 3/4" — 4"	3 1/2"	10"	7
★ RM-1187	RMP-1187	4" — 4 1/4"	4"	11"	7
★ RM-1343	RMP-1343	4 1/4" — 4 1/2"	4 1/4"	11"	7
★ RM-1531	RMP-1531	4 1/2" — 4 3/4"	4 1/2"	11"	7
★ RM-1761	RMP-1761	4 3/4" — 5"	4 3/4"	11"	7
★ RM-2210	RMP-2210	5" — 5 1/4"	5"	11"	7
★ RM-2750	RMP-2750	5 1/4" — 5 1/2"	5 1/4"	11"	7



REAMER SETS IN CONVENIENT FITTED BOXES

[A] ★RM-3 REAMER SET contains 8 reamers (with pilots), Nos. RM-468 to RM-937 (range 1/4" to 1 1/4"). In wood box.

[B] ★RM-1 REAMER SET contains 8 reamers (without pilots), Nos. RM-468 to RM-937 (range 1 1/2" to 1 1/4"). In wood box.

[C] ★RP-16B REAMER SET contains 4 reamers, Nos. RP-437 to RP-625 (range 1/4" to 3/4"). In metal box.

[D] ★RP-17B REAMER SET contains 7 reamers, Nos. RP-687 to RP-1062 (range 1 1/4" to 1 1/2"). In wood box.

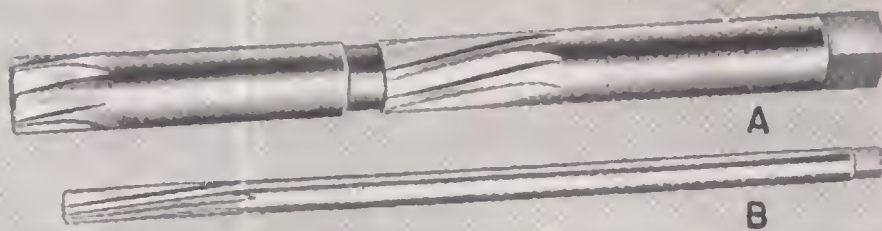
[E] ★A-7 REAMER SET contains 7 small reamers, Nos. 8-A to 2-A (range 1/4" to 1 1/2") in metal box.

[F] ★RL-19 REAMER SET contains 6 reamers, Nos. RL-500, RL-625, RL-687, RL-750, RL-812, and RL-1000 (range 1/2" to 1 1/4"), packed in metal box.

[G] ★394 REAMER SET contains 7 reamers with extension shank Nos. 385 to 401 (range 1/4" to 1 1/2") packed in metal box.

384 EXTENSION SHANK SET contains 7 extension shanks Nos. 385 to 391 to fit reamers in A-7 set. Packed in cardboard box.

Blue-Point REAMERS SOLID TYPE



PISTON PIN BUSHING REAMERS

A These reamers are constructed to ream both the piston and connecting rod bushings. The front end is ground to act as a pilot which makes accurate reaming of the piston and connecting rod an easy operation.

Stock No.	Description	Size Front	Size Back	Length
★RT-750-A	For all Ford V-8 cars & trucks (except 60 H.P.) Mercury and Lincoln Zephyr 1937-48 incl. Lincoln 1939-45 incl., standard size	.750"	.750"	7 1/2"
★RT-750-5	Same as RT-750-A .005" oversize	.755"	.755"	7 1/2"
★RT-791	For all Plymouth 4-cyl. (also king bolt bushing), Essex 1923-34, Hudson 1930-35	.761"		11"
★RT-890	For all 6-cyl. Plymouth and Chrysler 1933-47, Desoto 1932-47	.800"		11"
★RT-888	For Chevy 6, 1937-47 standard size	.800"		11"
★RT-888-5	Same as RT-888 .005" oversize	.871"		11"
★RT-888-10	Same as RT-888 .010" oversize	.876"		11"
★RT-878	For Packard 1926-47, all other cars with 3/8" pins	.876"		11"
★RT-990	For Chevy 6, 1929-36 incl. standard size	.960"	.991"	8 1/2"
★RT-990-3	Same as RT-990 .003" oversize	.993"	.994"	8 1/2"
★RT-990-5	Same as RT-990 .005" oversize	.995"	.996"	8 1/2"
★RT-990-10	Same as RT-990 .010" oversize	1.000"	1.001"	8 1/2"
★RT-990-15	Same as RT-990 .015" oversize	1.005"	1.006"	8 1/2"
★RT-1000	For all Fords A, AA, B, BB cars and trucks standard size	1.000"	1.001"	8 1/2"
★RT-1000-2	For all Fords A, AA, B, BB cars and trucks .002" oversize	1.002"	1.003"	8 1/2"
★RT-1000-5	For all Fords A, AA, B, BB cars and trucks .005" oversize	1.005"	1.006"	8 1/2"
★RT-1001	All cars with 1" pins (except Ford)	1.001"		5 1/2"
★RT-6885	All 60 H.P. Ford standard size	.6885"		8"
★RT-6885-5	Same as RT-6885 .005" oversize	.6885"		8"

VALVE GUIDE REAMERS

B A solid type reamer with long shank for effectively removing carbon and truing the valve guide in one operation.

Stock No.	Reamer Size	Length	Stock No.	Reamer Size	Length
★1100	3/8"	7 1/2"	★1005-A	7/16"	8"
★1101	7/16"	7 1/2"	★1006	1/2"	9"
★1102	1 1/16"	7 1/2"	★1007	3/8"	9"
★1002-A	3/4"	8"	★1007-A	1 1/16"	9"
★1003	1 1/8"	8"	★1007-B	3/4"	9"
★1004	1 1/4"	8"	★1008	1 1/2"	9"
★1005	1 3/8"	8"	★1009	2"	9"

ALIGNING REAMERS

B These long aligning reamers are ideal for reaming and aligning the bushings on electric motors. All have milled flutes with a pilot on the front end to guide the reamer accurately through the bushing.

Stock No.	Description	Reamer Size	Length
★25-L	For sewing machine motors, fans, etc.	3/4"	6 1/2"
★26-L	For Apex, Royal, Ohio, Zenith, Western Electric, Sweeper Vac. and Regina	1 1/4"	7 1/2"
★27-L	See Van., Federal, Fedeleo	2 1/4"	7 1/2"
★28-L	Super Royal, Cadillac, Heathcote	2 1/2"	7 1/2"
★29-L	Eureka, Cadillac	2 3/4"	7 1/2"
★29-LA	Western Electric, Sweeper Vac.	2 3/4"	8 1/2"
★29-LB		3"	9"
★29-LC		3 1/8"	10"
★30-L	G.E. and other washing machine motors	3 1/2"	11"
★31-L		3 3/4"	11"
★32-L		4"	13"
★33-L	Western Electric and Sweeper Vac.	1 1/4" & 1 1/2"	7 1/2"
★34-L	Hoover 101	1 1/4" & 1 1/2"	7 1/2"
★37-L	Hoover 102-103-341	1 1/4" & 1 1/2"	7 1/2"

Note: Special sizes (within the size range) King Bolt, Piston Pin and Pitman Shaft bushing reamers will be furnished at an additional cost of \$1.50 above the cost of the next larger size reamer listed.

CUTTING OIL

A RCO-32 Cutting Oil. One quart size. Should be used for all reaming work as well as drilling and tapping. Prevents galling and chattering and helps produce a finer, more accurate finish. Cuts down resharpening of tools. Metal can has handy spout for applying oil.

BALL BEARING LUBRICANT

B UN-1 Lubricant. Made expressly for ball bearings and furnished in a special, long nozzle tube for easy application. All bearings except the sealed type require occasional lubrication to keep them rolling freely and prevent wear.

PRESSURE OILER

C ★OC-5 Pressure Oiler. Capacity 5 ounces. A squeeze of the trigger delivers either a drop or a fine stream of oil. The long tapered spout is 5 1/2" long, its removable screw-on tip has a shoulder to facilitate lifting the spring loaded oiler caps. O.D. is only 1 3/8", finished in aluminum lacquer.

★OCH-5 Oiler Holder. Fastens to wall or bench to hold OC-5.

KING PIN BUSHING REAMERS

A These reamers have milled flutes on the front end to remove burrs or excess metal and allow the pilot to enter freely. Both ends of the reamer are ground to act as pilots, assuring perfect alignment.

Stock No.	Description	Reamer Size	Length
★RR-863	Black 1929-31 Series 50, 9-cyl. 1929-30. All 1934-48 models 49, 51, 53 and 70 except 3450, 3550, 3400, 3500, and 2000. Olds 1926-45, all models. Pontiac 1932, model 302, 1937-48, six and eight. Marquette series 30, 6-cyl.	.863"	11"
★RR-867	For Chevy 1936 bushing type and all 1937-48 knee-action models. All Packard 6 & 8, 1935-47 inclusive	.867"	11"
★RR-876	For all 3/4" king pin bushings	.876"	11"
★RR-922	For all Chevy 6, 1 1/2-ton trucks except C.O.E. & H.D.	.922"	12 1/4"
★RR-922-10	Same as RR-922 .010" oversize	.932"	12 1/4"
★RR-932	Lincoln and Lincoln Zephyr 1937-49 incl. Mercury 1949	.932"	12 3/4"
★RR-1110	For Chevy trucks C.O.E., V, W, 1 1/2-ton; WC heavy duty, 1 1/2-ton 1939-47	1.110"	13"
★RR-1110A	Set of 2 reamers for upper & lower bushings on Timken axle Nos. 30000 and 31000 series. Geo truck 1940-41, 1 1/2- and 3-ton models 19, 20, 21, 22 series	1.110"	14 1/2"
★RR-1130	For all 1934-49 incl. 1 1/2-ton V-8 Ford trucks	1.130"	13"
★RR-1360	Set of 2 reamers for Timken front axles	1.360"	10 1/2"
★RR-7353	For all Chevy 4 & 6-cyl. 1928-49, all Pontiac 1928-30 (except knee-action models), all Plymouth 1933 PG and PD, 1934 PF and PG	.7353"	12"
★RR-7365	For Plymouth 1934 PE, all Plymouth & Dodge 1935-47 (except Dodge 7 pass. sedan & Lincoln) and some Chrysler & Desoto cars. Kaiser & Frazer 1946-47	.7365"	11"
★RR-1133A	For all A, B, and V-8 Ford cars including 1949; 3 1/2-, 4-, and 1-ton Ford trucks including 1949; 1928-29 AA Ford trucks and Mercury cars 1933-48	.9135"	11"
★RR-10045	For all AA, BB, and V-8 Ford trucks 1930-37	1.0045"	12 3/4"
★RR-12608	For all Chevy and Pontiac 1934-36 knee-action	1.0058"	9 1/2"
★RR-12345	Set of 2 reamers for upper & lower bushings on 1948-49 Ford trucks 2 1/2- and 3-ton. Diamond T 1941-46 models 702 and 702-BD1500. Geo truck 1940 models 23, 231, NW141. Timken axle Nos. 32000 and 33000 series. Clark axle model F-308. Dodge, Ford school bus, Mack, Studebaker, and Yellow Coach trucks using 1.233 King Bolts	1.2345"	10 1/2"

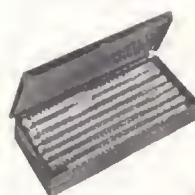
PITMAN BUSHING REAMERS

A A solid type reamer with milled flutes on the front end to remove burrs for easy entry of the reamer.

Stock No.	Description	Reamer Size	Length
★RQ-878	For Chevy Standard Car, 1933 to 1935 inclusive	.878"	11"
★RQ-1001	For Chevy 1931-32 and 1936 Standard Car, 1933-34 Master Car and 1931-35 inclusive Trucks	1.001"	10"
★RQ-1126	For Ford, A, AA, B, BB, and V-8 Cars and Trucks to 1948 (except V-8, 1 1/2 Ton) and Chevy 1935-49 inclusive Master and Deluxe Cars and 1936-48 inclusive Chevy Trucks. Oldsmobile 1935-47 inclusive, Pontiac 1937-47 inclusive	1.126"	10"
★RQ-1251	For Ford V-8 1 1/2-Ton Truck 1932-46 inclusive	1.251"	11 1/4"

ALIGNING REAMER SET

★20-LS REAMER SET contains 7 aligning reamers described at left. Stock Nos. 25L, 26L, 27L, 28L, 29L, 36L, and 37L (a size range of 3/4" to 2 1/4"), put up in a neat metal box as illustrated.



Blue-Point TAPS and DIES

★TD-9900-A Complete Set. All the thread cutting equipment necessary to handle NF and NC threads in $\frac{1}{8}$ " to 1" diameters, a series of 6 machine screw sizes 4-36 to 12-24 and $\frac{1}{8}$ " and $\frac{1}{4}$ " pipe sizes. Set contains all the taps listed at bottom of page and all the dies except the D-014, D-019, DR-032 and DR-037 sizes. Also included are the TD-3A, TD-10, TD-15 and TD-35 die stocks and the TD-4, TD-20 and TD-45 tap wrenches. The fitted wood case affords a safe, permanent means of storing the tools. Tray section lifts out and is placed in the lid during use. See illustration at the left.

★TD-2500-A Machine Screw Set. A set of high quality taps and dies to handle these small machine screw threading jobs. Dies are one-piece circular type, adjustable from .001" to .003" under or oversize. Includes taps and dies sizes 4-36, 6-32, 8-32, 10-24, 10-32 and 12-24 listed below, and the TD-4 4-Jaw Tap Wrench and TD-3A Die Stock. In fitted wood case as shown above.

★TD-2400 Standard Set. A compact assortment of the taps and dies most commonly used in garages, service stations, etc. Dies are one-piece double hexagon type and can be used with a 1" socket in close quarters. This popular set contains N. F. sizes $\frac{1}{4}$ "-28, $\frac{3}{8}$ "-24, $\frac{1}{2}$ "-20, $\frac{5}{8}$ "-18, 1"-16; N. C. sizes $\frac{1}{4}$ "-20, $\frac{3}{8}$ "-18, $\frac{1}{2}$ "-16, $\frac{5}{8}$ "-14, 1"-12, and 1 1/2"-10 pipe thread, together with TD-2 Tap Wrench and TD-10 self-centering Die Stock. Complete in fitted wood case shown above.

★TD-7800 Intermediate Set. Handles N. F. and N. C. thread sizes $\frac{1}{2}$ " to $\frac{3}{4}$ ". The dies in this set are one-piece 1 1/2" diameter round type, adjustable to give a tight or loose fit—.001" to .003" under or oversize. N. F. sizes are $\frac{1}{2}$ "-20, $\frac{3}{4}$ "-18, $\frac{5}{8}$ "-18, $\frac{3}{4}$ "-16. N. C. sizes are $\frac{1}{2}$ "-13, $\frac{3}{4}$ "-12, $\frac{5}{8}$ "-11, $\frac{3}{4}$ "-10. The TD-35 Self-centering Die Stock and TD-20 Tap Wrench complete the set which comes in a sturdy fitted wood case as illustrated above.

Blue-Point Taps and Dies give you more than appearance—they give you the finest and toughest thread cutting tools you ever bought. Try them and you'll agree.

Dies $\frac{1}{4}$ " to $\frac{1}{2}$ " are one-piece, double hex type . . . a major convenience as they can be turned with a one inch socket wrench in close quarters where regular die stocks cannot be used. Machine screw dies 4-36 to 12-24 and dies $\frac{1}{2}$ " to $\frac{3}{4}$ " are one-piece circular type. Both types are adjustable to give a tight or loose fit to your thread—a small adjusting screw changes the nominal die size from .001" to .003" under or over. Dies $\frac{3}{4}$ ", $\frac{1}{2}$ " and 1" are available in "Chaser" type 4-piece sets, listed below. The three largest die stocks are self-centering and adjust to the diameter of the rod or bolt, insuring an accurate, straight thread . . . prevents dies from breakage due to tilting.

DIE STOCKS AND TAP WRENCHES

- TD-3A Die Stock. For round dies 4-36 to 12-24.
- TD-10 Die Stock. Self-centering for 1" hex dies.
- TD-15 Die Stock. Self-centering for chaser-type dies.
- TD-35 Die Stock. Self-centering for 1 1/2" round dies.
- TD-2 Tap Wrench. Clamp-type for $\frac{1}{8}$ " to $\frac{1}{2}$ " taps.
- TD-4 Tap Wrench. 4-jaw chuck, for 4-36 to 12-24 taps.
- TD-20 Tap Wrench. Clamp type, for $\frac{1}{2}$ " to 1" taps.
- TD-45 Tap Wrench. 4-jaw chuck, for $\frac{1}{4}$ " to $\frac{1}{2}$ " taps.
- EH-10 Tap Wrench. 4-jaw chuck, for 6-32 to 10-32 taps.
- EH-20 Tap Wrench. 4-jaw chuck for $\frac{1}{32}$ " to $\frac{9}{64}$ " taps.
- EH-30 Tap Wrench. 4-jaw chuck, for $\frac{1}{4}$ " to $\frac{1}{2}$ " taps.
- EH-40 Tap Wrench. 2-jaw chuck, for $\frac{1}{4}$ " to $\frac{1}{2}$ " taps.
- EH-50 Tap Wrench. 2-jaw chuck, for $\frac{1}{8}$ " to $\frac{1}{32}$ " taps.

BLUE-POINT TAPS AND DIES

National Fine Sizes

Thread Size	Taps		Dies	
	No.		No.	Type
$\frac{1}{16}$ "-28	★ T-105		★ D-015	1" Hexagon
$\frac{1}{8}$ "-24	★ T-106		★ D-016	1" Hexagon
$\frac{3}{16}$ "-24	★ T-107		★ D-017	1" Hexagon
$\frac{1}{4}$ "-20	★ T-108		★ D-018	1" Hexagon
$\frac{5}{16}$ "-20	★ T-109		★ D-019	1" Hexagon
$\frac{3}{8}$ "-18	★ T-125		★ DR-019	1 1/2" Round
$\frac{7}{16}$ "-18	★ T-126		★ DR-035	1 1/2" Round
$\frac{1}{2}$ "-14	★ T-127		★ DR-036	1 1/2" Round
$\frac{5}{8}$ "-12	★ T-128		★ DR-037	1 1/2" Round
$\frac{3}{4}$ "-10	★ T-129		★ DC-017	Chaser
$\frac{7}{8}$ "-9	★ T-130		★ DC-018	Chaser
1"-8	★ T-131		★ DC-019	Chaser

National Coarse Sizes

Thread Size	Taps		Dies	
	No.		No.	Type
$\frac{1}{4}$ "-20	★ T-100		★ D-010	1" Hexagon
$\frac{3}{8}$ "-16	★ T-101		★ D-011	1" Hexagon
$\frac{1}{2}$ "-12	★ T-102		★ D-012	1" Hexagon
$\frac{5}{8}$ "-11	★ T-103		★ D-013	1" Hexagon
$\frac{3}{4}$ "-10	★ T-104		★ D-014	1" Hexagon
$\frac{1}{2}$ "-13			★ DR-014	1 1/2" Round
$\frac{3}{4}$ "-12	★ T-120		★ DR-038	1 1/2" Round
$\frac{1}{2}$ "-11	★ T-121		★ DR-031	1 1/2" Round
$\frac{3}{4}$ "-10	★ T-122		★ DR-032	1 1/2" Round
$\frac{1}{2}$ "-10			★ DC-012	Chaser
$\frac{3}{4}$ "-9	★ T-123		★ DC-013	Chaser
1"-8	★ T-124		★ DC-014	Chaser

Machine Screw Sizes

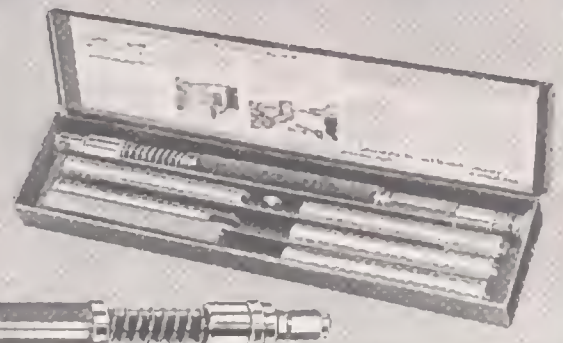
Thread Size	Taps		Dies	
	No.		No.	Type
4-36	★ T-111		★ DR-021	$\frac{1}{8}$ " Round
6-32	★ T-112		★ DR-022	$\frac{3}{16}$ " Round
8-32	★ T-113		★ DR-023	$\frac{1}{4}$ " Round
10-24	★ T-114		★ DR-024	$\frac{5}{16}$ " Round
10-32	★ T-115		★ DR-025	$\frac{3}{8}$ " Round
12-24	★ T-116		★ DR-026	$\frac{7}{16}$ " Round
$\frac{1}{4}$ "	★ T-110		★ D-020	1" Hexagon
$\frac{3}{8}$ "	★ T-110		★ D-040	1" Hexagon

Pipe Sizes

Note: Because of the nature of their use, taps and dies cannot be guaranteed.

A TYDEMAN HONE SET EQUIPS YOUR SHOP

TO SERVICE
95% OF
AUTOMOTIVE
PIN HOLES
AND
BUSHINGS



These hones not only enlarge holes—they true them also. They work in all metals . . . hardened steel, cast iron, brass, aluminum, bakelite, glass, plastics, or any material that can be ground. They're portable and you can drive them with a regular $\frac{1}{2}$ " drill—or you can turn them by hand. Two different hone lengths are available to fit your particular needs.

They have more grinding surface than other similar tools—the full 8" of length on the large size hone blades will hone two bearing surfaces truly in line. Both tools use economical, easy-to-replace grinding sheets that actually cost less than sharpening reamers.

A micrometer stop, adjustable to .00025", enables you to hone to exactly the correct tolerance. Simply preset the micrometer and expansion is stopped at that setting. The Speed Sleeve automatically

expands the blades as fast as the metal cuts away—without further adjustments . . . you can remove as much as $\frac{1}{32}$ " about as fast as you could ream it—and do a precision finished job.

A unique, four-point driven universal joint at the drive end of the tool is free-rolling . . . the tool spins with scarcely a waver without holding the end. This universal joint rolls freely at better than 600 R.P.M., prevents flopping when you let go of the speed sleeve to try the fit.

Blades ride full length on the tapered body—top surfaces of blades are always parallel at any expansion—cannot bow at any point. Relieved sections all sides of blade prevent cuttings from piling up on abrasives. The smaller blades are reinforced at one end for added strength. Order blades and abrasives by stock number.

TH-10 LONG BLADE TYPE—8" LONG

TH-10 Tydeman Hone Set. Contains TH-10-1 Body Assembly, 10 pairs of standard blades listed below at left and one pair of abrasives for each pair of blades. Set comes complete with No. 10-TY Metal Box. Size range of this set is $\frac{1}{16}$ " to $\frac{1}{4}$ ".

TH-10-1 Body Assembly, with 1 pair of standard blades. State stock number of blades needed.

Standard Blades and Abrasives

Blades (Pairs)		Abrasives	
		Fine	Coarse
10-2-A	$\frac{1}{16}$ " to $\frac{1}{8}$ "	Uses ★10-3A22	★10-3B22
10-2-B	$\frac{1}{8}$ " to $\frac{3}{16}$ "	★10-3A24	★10-3B24
10-2-C	$\frac{3}{16}$ " to $\frac{1}{2}$ "	★10-3A26	★10-3B26
10-2-D	$\frac{1}{2}$ " to $\frac{5}{8}$ "	★10-3A28	★10-3B28
10-2-E	$\frac{5}{8}$ " to 1"	★10-3A30	★10-3B30
10-2-F	1" to $1\frac{1}{8}$ "	★10-3A30	★10-3B30
10-2-G	$1\frac{1}{8}$ " to $1\frac{1}{2}$ "	★10-3A30	★10-3B30
10-2-H	$1\frac{1}{2}$ " to $1\frac{3}{4}$ "	★10-3A30	★10-3B30
10-2-J	$1\frac{3}{4}$ " to 1 7/8"	★10-3A30	★10-3B30
10-2-K	1 7/8" to 2"	★10-3A30	★10-3B30

Special Blades and Abrasives

Blades (Pairs)		Abrasives	
		Fine	Coarse
10-2-M	$\frac{1}{16}$ "	Uses ★10-3A30	★10-3B30
10-2-N	$\frac{1}{8}$ "	Uses ★10-3A30	★10-3B30
10-2-Q	$\frac{1}{4}$ "	Uses ★10-3A30	★10-3B30
Abrasive sheets available in dozen lots in any one size.			
★10-3A—Package of 24 assorted sheets of fine abrasives.			
★10-3B—Package of 24 assorted sheets of coarse abrasives.			
Order blade pairs and abrasives by stock numbers to eliminate shipping errors.			

TH-6 SHORT BLADE TYPE—5 3/4" Long

TH-6 Tydeman Hone Set. Contains TH-6-1 Body Assembly, 6 pairs of standard blades listed below and 7 pairs of abrasives in the 6-TY metal box. Size range of .733"-1 1/8".

TH-6-1 Body Assembly with 1 pair standard blades, state size needed when ordering.

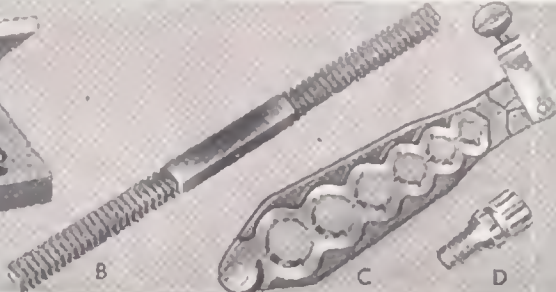
Standard Blades (Pairs)		Special Blades (Pairs)	
Size		Size	
TH-6-2A	.735"-.810"	TH-6-2S	.703"-.750"
TH-6-2B	.810"-.860"	Following sizes use 1-4A & 1-4B abrasives.	
TH-6-2C	.860"-.910"	TH-6-2G	1 1/8"-1 1/16"
TH-6-2D	.910"-.960"	TH-6-2H	1 1/16"-1 1/8"
TH-6-2E	1"-.1 1/8"	TH-6-2J	1 1/8"-1 1/16"
TH-6-2F	1 1/8"-1 1/4"		

Abrasives for TH-6 Hone

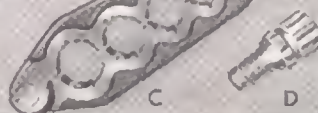
★1-3A .703"-1 1/4", Fine Abr. Pkg. of 24 sheets.
★1-3B .703"-1 1/4", Coarse Abr. Pkg. of 24 sheets.
★1-4A 1 1/8"-1 1/16", Fine Abr. Pkg. of 24 sheets.
★1-4B 1 1/8"-1 1/16", Coarse Abr. Pkg. of 24 sheets.



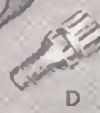
A



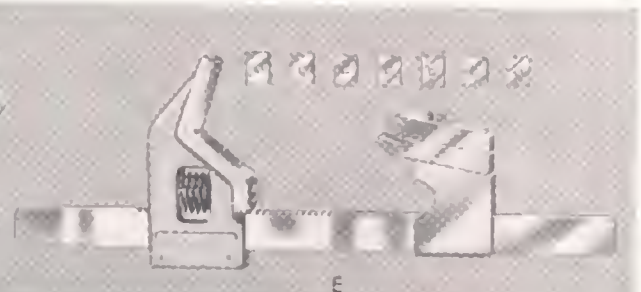
B



C



D



E

SPARK PLUG TAP SET

Repairs damaged threads in aluminum heads. If threads are badly stripped it may be necessary to rebore the hole with the counterboring tool and rethread for the next size spark plug. The MCB-3 Counterbore will ream a 10 mm. hole to a 14 mm., a 14 mm. to 18 mm., and an 18 mm. to a 22". Turn with a wrench or electric drill.

★TOM-13 Spark Plug Set. Four Spark Plug Taps and Counterbore in box as illustrated.

★TDM-11 Set of Four Spark Plug Taps. In box.

★MCB-3 Counterbore.

★T-10100	10mm. x 1.00 Tap
★T-14125	14mm. x 1.25 Tap
★T-18150	18mm. x 1.50 Tap
★T-2818	28mm. x 1.80 Tap

THREAD RESTORERS

A few strokes across battered threads, produce a true new thread—but will then go on easily. Each tool has 8 thread sizes.

★K-1124 Has 11, 12, 13, 14, 16, 18, 20, and 24 threads to the inch.

★K-1127 Has 9, 10, 15, 16, 20, 26, 28, and 32 threads to the inch.

AXLE RETHREADING TOOL

★AR-6A Axle Rethreader. Here is a tool that does a fast job of restoring battered axle threads. Though very compact it contains the six most popular axle thread sizes in use. Tool is placed around the axle where the thread is still in good condition. The end clamp holds the two pieces securely in place while the tool is worked over the damaged part to restore it to its original condition. Contains the following sizes: $\frac{3}{8}$ "-18, $\frac{7}{16}$ "-16, $\frac{1}{2}$ "-14, 1"-14, 1 1/8"-12 and 1 1/4"-12

INVERTED FITTING CHASER SET

★TDC-3 Chaser Set. These combination chasers are specially designed to retap and rethread tube fittings of the inverted flared type. By restoring damaged threads in these units you can save yourself the time required to remove the old fitting, replacing with a new one and then retapping the tube. The three sizes below fit most hydraulic brake lines as well as some gas and oil lines in use on present day cars. Set contains 3 sizes as listed:

★TDC-1224	1/4" - 24 Chaser
★TDC-1424	3/16" - 24 Chaser
★TDC-1620	1/2" - 20 Chaser

UNIVERSAL RETHREADING TOOL

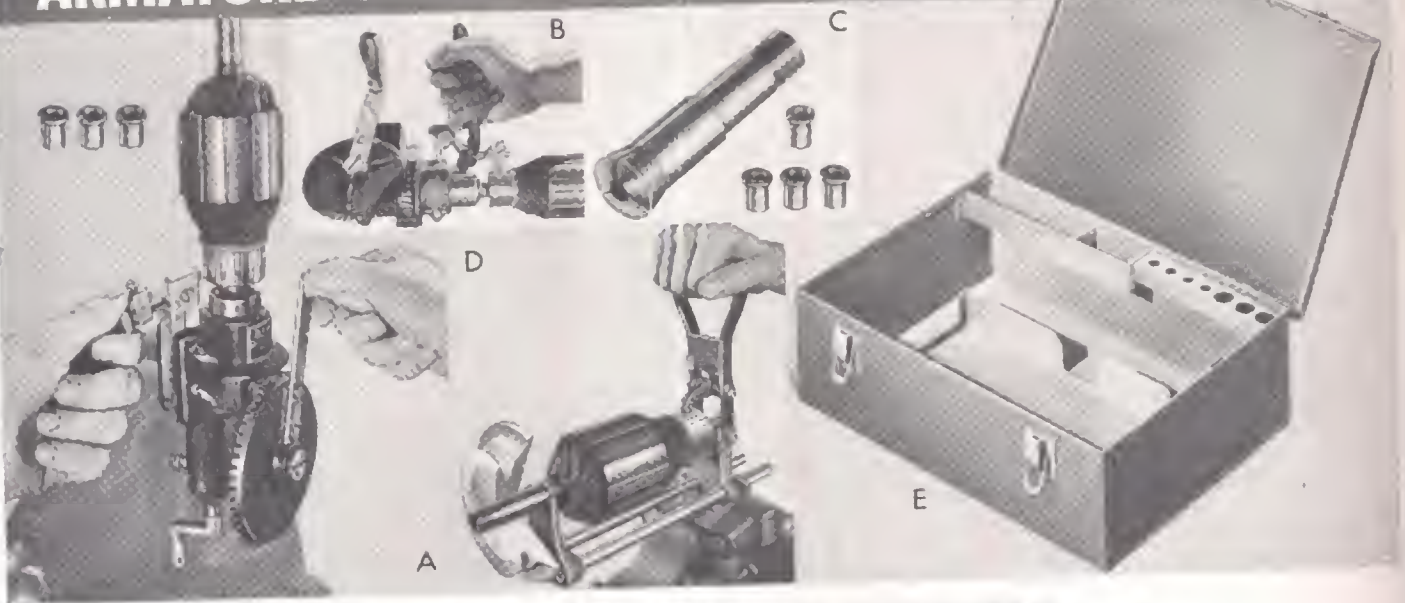
★TR-20 Universal Rethreader. Here is a rethreading tool that will handle practically all rethreading work you'll run across and do a fast, accurate job of restoring it to original condition. This tool has a capacity of $\frac{1}{2}$ " to 5" diameter for bolt threads and $\frac{1}{4}$ " to 4" for pipe threads. Seven chasers with two sizes each are included with the TR-20 to recut threads from 6 to 24 pitch. The TR-20-10 Chaser is available as an additional unit. Chasers are machined from the highest quality tool steel and are carefully heat treated to assure long wearing cutting edges. A metal ring is provided for convenience in holding the chasers.

The chaser holding bracket of the tool is so designed that threads can be recut right up to a beveled edge or square shoulder. The adjustable jaw has a liner of soft brass to protect the threads from further damage while being recut. This liner is subject to hard wear but it can be easily replaced.

★TR-20-5 Soft Brass Liner

Chasers—Stock No. and Thread Pitch			
★TR-20-10	4 & 5	★TR-20-14	11 & 12
★TR-20-11	6 & 7	★TR-20-15	13 & 14
★TR-20-12	8 & 9	★TR-20-16	16 & 18
★TR-20-13	10 & 11	★TR-20-17	20 & 24

ARMATURE TESTING and RECONDITIONING TOOLS



BLUE-POINT ARMATURE RECONDITIONING TOOLS

[A] AT-2 Armature Reconditioning Tool. Handles both phases of the job . . . turns down the armature—undercuts the mica. Simply lock this tool in a vise and you're all set to do a fast, accurate job. This tool is a well engineered, substantially built machine which turns out work comparable to that done on expensive lathes—yet is priced low to show a profit quickly. The AT-2 handles armatures with $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ " and $\frac{11}{16}$ " shafts . . . does the job faster than a lathe—without removing back plates. Amount of cut is controlled to the finest shaving. Bottom handle raises the armature to starting position and the armature lowers automatically as the cut is made. After armature is turned down, replace the cutter bar with the AT-2-39 mica undercutting tool, which is furnished as part of the AT-2. Use in horizontal position, as shown, to undercut mica. Tool includes one double-end tool steel cutter blade and .015", .020", and .025" Mica Saw Blades.

Extra Cutters and Blades

- ★AT-2-16 Armature Cutter Blade only.
- ★AT-2-35-A .015" Mica Saw Blade only.
- ★AT-2-35-B .020" Mica Saw Blade only.
- ★AT-2-35-C .025" Mica Saw Blade only.

[B] AT-2X Armature Turning Tool. For mechanics who have a mica undercutter or prefer to use the UC-6 Tool (item [E]). Tool includes one AT-2-16 double-end tool steel cutter blade.

[C] AT-2-550 Small Collet and Bushing Set. Adapts the AT-2 Armature Reconditioner to the majority of fractional power motors used in vacuum cleaners, fans, sewing machines, etc. Handles shafts as small as .265" diameter. Set includes—

AT-2-5-7-5-2	$\frac{3}{16}$ " Collet
AT-2-5-7-5-5	$\frac{1}{4}$ " Bushing
AT-2-5-7-5-6	.296" Bushing
AT-2-5-7-5-7	.281" Bushing
AT-2-5-7-5-8	.265" Bushing

[D] KR-108 Metal Case. Designed to hold all the armature reconditioning tools shown above. Special compartments provide for storage of the small bushings and collets. $13\frac{1}{2}$ " x $9\frac{1}{2}$ " x $4\frac{1}{2}$ " high. Baked on red enamel finish. Metal carrying handle on top. Cover is held by two sturdy hinges and two snap hasps.

ARS-11-B Armature Tool Set. Consists of AT-2 Tool in KR-108 metal case.

ARS-12-B Armature Tool Set. Consists of AT-2X turning tool and UC-6 mica undercutter in KR-108 metal case.

[E] UC-6 Mica Undercutter. To our knowledge this is the only undercutter, including the electric rotary type, that is primarily designed to eliminate the packing of copper chips in the corners. This is accomplished by the use of reverse teeth in the cutter which do the actual cutting on the return stroke. This reverse action feature also makes the teeth of the cutter blade self-cleaning.

With this inexpensive tool you can quickly turn out a precise undercutting job. Simply clamp the base of the undercutter in a vise and attach the commutator. Complete instructions are furnished. The UC-6 Undercutter is designed to handle a wide range of commutator sizes and it should not be necessary to readjust to a parallel position each time you undercut an armature. The adjustable "V" base enables you to handle armatures without removing the pulley or end bell. One each of the three blades listed below are included with the tool.

Extra Saw Blades

- ★UC-6-015 .015" Thickness Saw Blade
- ★UC-6-020 .020" Thickness Saw Blade
- ★UC-6-025 .025" Thickness Saw Blade

BLUE POINT ARMATURE GROWLERS



Left—Model AT-46

Right—Model AT-12

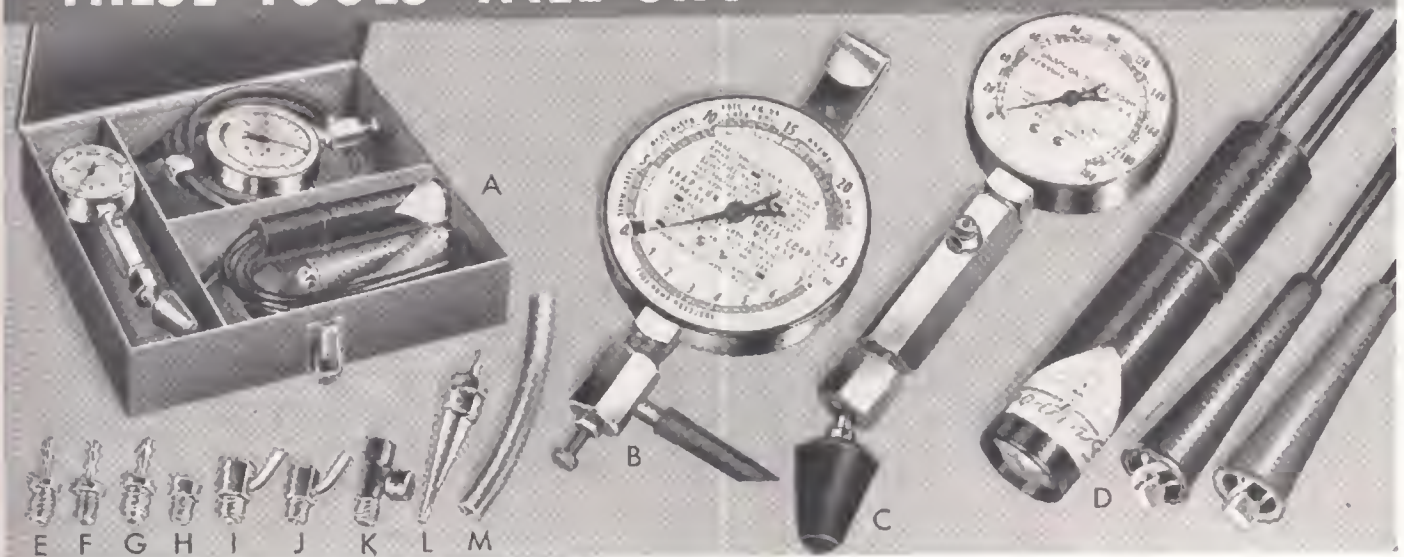
Note: Use these growlers on 110 volt A.C. 60 cycle current. When a growler is connected to the line current always be sure that the "V" is bridged with an armature before turning the switch to "ON" position . . . unbridged growler coils burn out quickly.

AT-46 Meter-Type Armature Growler. The meter indicates a defective winding, poorly soldered connections, severed coils, transposed leads, nature of defect and its exact location in the armature, etc. Three way switch turns to "HIGH" and "LOW" resistance or turns current off entirely.

The "HIGH" position is for generator armatures and the "LOW" for starting motor armatures. A ruby test light is mounted on the panel. When using growler simply place the armature in the "V" and turn switch to the proper "HIGH" or "LOW" position. The two testing points can be used when the unit is connected with the source of A.C. current while leaving the growler line switch in the "OFF" position. Instruction booklet shows correct way to use this growler.

AT-12 Armature Growler. Checking armatures for short circuits, open circuits and grounds in armature windings is a must when reconditioning motors and generators, if satisfactory operation is to be the result. To do this job quickly yet accurately, an armature growler is an absolute necessity. This is a well built unit of simpler construction than the one described at left. The AT-12 is a compact growler complete with prods, test lamp socket and switch; all mounted on a metal base. Screw in an ordinary light bulb, connect the growler to an electric outlet, and you are all set to check and find the source of the armature trouble. Separate wiring for the test prods makes them independent of the switch allowing them to be used without the growler coil in operation.

THESE TOOLS WILL SHORTEN TUNE-UP TIME



MOTOR TUNE-UP SET

MT-312-B Motor Tune-Up set. With this set any mechanic can quickly tell "what's" wrong with a motor, and "where" ... can shorten tune-up time and turn out easy-starting, sweet-running jobs that will satisfy your customers and bring more business. And ... each tool is a dependable, precision instrument—gauges are designed like watches, with bushed bearings and ultra-sensitive spring movements.

The set consists of the following twelve units: MT-24-D Compression Gauge, MT-14-A Vacuum Gauge, nine adaptors listed below and shown above **E** to **M**, and Testing Light MT-50. Complete in a sturdy metal case KR-125. Case has our standard red enamel finish.

VACUUM GAUGE

MT-14-A Vacuum and Fuel Pump Gauge. Accurately detects a wide range of engine troubles from leaky manifolds to weak valve springs. The 3-color, 3½" dial tells at a glance the source of trouble.

Normal motor and fuel pump divisions are outlined in green. Faulty motor divisions are outlined in red. Further subdivided into—"Leaky Manifold," "Heat Riser," and "Late Ignition or Carburetor Adjustment." Complete instructions are packed with the gauge. Adjustable restriction screw controls and minimizes the indicator vibrations, assuring exact readings. Four feet of hose are included.

VACUUM GAUGE ADAPTORS

Connect Snap-on Vacuum Gauge to tube or hose lines.

- | | |
|--------------------------------------|----------------------------------|
| E MT-12-10 ¼" pipe thread | J MT-14-9 7/16"-24 thread |
| F MT-12-12 ½"-20 thread | K MT-14-10 ¼" pipe 3-way |
| G MT-14-6 ¼" x 18 pipe thread | L MT-14-11 Hose Coupling |
| H MT-14-7 ½" pipe x 7/16"-24 | M MT-14-12 Tube connector |
| I MT-14-8 ½"-20 thread | |

SNAP-ON POWER TIMING LIGHT



TL-95 Power Timing Light. Makes split-second daylight testing easy on ignition timing, synchronism, governor action and distributor shaft play. Zero degree time lag shows light flash and spark at identical instant. Brilliant high speed flash tube throws a powerful beam at all engine speeds ... convex lens focuses light where needed. Four feet long flexible Neoprene leads. Mueller Universal Clips. Rubber pipples are colored—red and black indicate positive and negative battery connections—the third is clipped to spark plug. The power unit accumulates power from the battery and releases it in a brilliant flash.

Molded Neoprene case withstands rough service ... provides protection against shock ... is completely grease and oil resistant ... and its pistol-type grip assures convenient, slip-proof handling. 90-day guarantee.

TL-95-1 Replacement Bulb only.

COMPRESSION GAUGE

MT-24-D Compression Gauge. Redesigned and improved, and furnished complete with a service kit of expendable parts. Registers from zero to 200 pounds compression per square inch ... holds the highest compression reading exactly until the release valve button is pressed. The gauge may thus be removed from the spark plug hole for easier reading. A big improvement over previous models is the use of a new check valve especially designed and built for this gauge. This valve is quite similar to a regular inner tube valve but do not use an ordinary valve as a replacement as it will cause inaccurate readings. A spare valve is included in the service kit.

The 2½" diameter dial is calibrated into 5 pound divisions ... the cover is easily replaced if damaged. The cone tip is made of neoprene and is not affected by grease or gasoline ... swivels to reach and fit all spark plug holes.

MT-24-DR Service Kit included with each of the above gauges consists of the following parts. Cone tip, valve and sealing ring in draw-string bag. Note: this kit is for model MT-24-D gauge only.

SNAP-ON TIMING LIGHT

★MT-50 Timing Light. Features a new glass enclosed pronged neon tube which gives a brighter light than most units and can be replaced as quickly and easily as a radio tube. Concentrating lens is recessed in the case for greatest protection. The 1½" diameter by 5½" long case is made of tough black plastic and has a high heat resistance ... the small size makes it easy to get down to the timing marks and is especially useful on GM cars, International Trucks and on cars where the timing marks are on the flywheel.

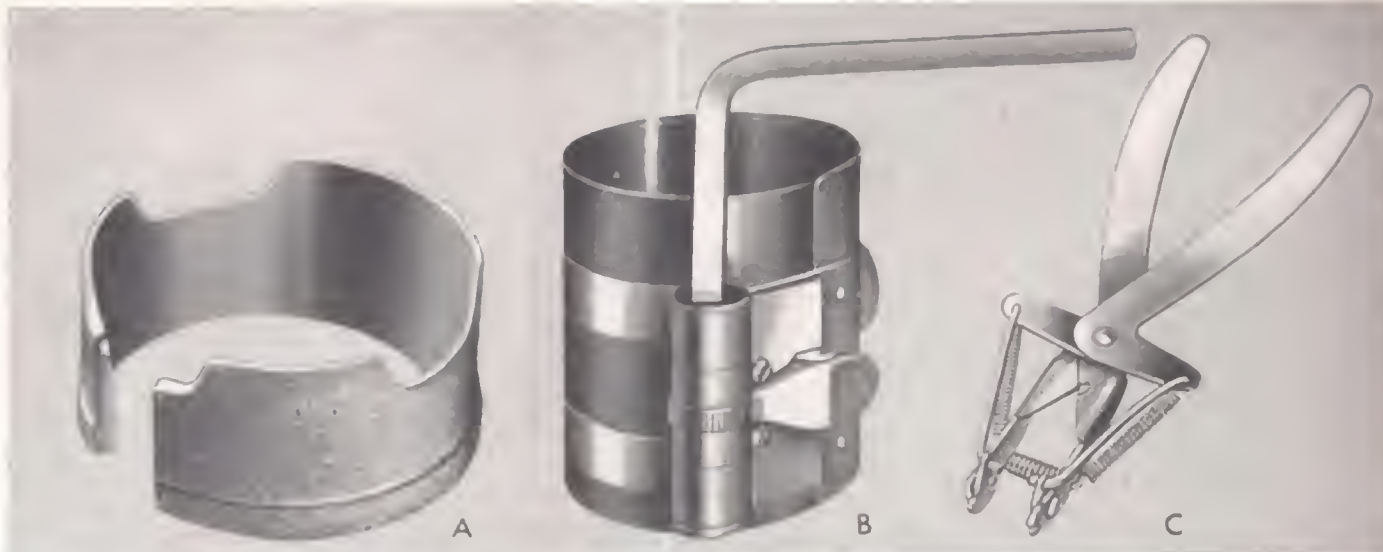
Synthetic rubber-covered, high tension ignition cable leads are four feet long and have rubber covered alligator clips to prevent shocks. The two piece case screws together and all parts can be removed if replacement is ever necessary.

★MT-50-4 Replacement Neon Tube only.

STARTER CURRENT INDICATOR



MT-109 Starter Current Indicator. Stop battery charging kick-backs and increase the starter work in your shop. This tool shows whether the starter motor is drawing too much current and will run down the battery in short time ... protects you from customers who claim that their battery was not charged properly. The metal channel is held over the cable while the starter switch is pressed and the indicator shows the amperage drawn by the motor ... charts are packed with the tool. Too high indicates worn bushings, grounded fields or armature coils. Too low with sluggish motor means excessive starter circuit resistance.



BLUE-POINT PISTON INSERTERS

A An easier, faster way to insert pistons. Simply insert the piston skirt into the top of the tool and slide it down until all rings are enclosed. Finger openings aid in guiding the rings. Hold base of inserter against block and push piston into cylinder. Made of cast iron with accurately machined walls. The slotted section permits expansion allowing installation of rings as much as .060" oversize.

Stock No.	Size	Stock No.	Size
RC-200	2"	RC-325	3 1/4"
RC-206	2 1/16"	RC-331	3 3/16"
RC-212	2 1/8"	RC-337	3 1/2"
RC-225	2 1/4"	RC-343	3 7/8"
RC-237	2 3/8"	RC-350	3 1/2"
RC-260	2 5/8"	RC-356	3 3/4"
RC-275	2 7/8"	RC-387	3 7/8"
RC-300	3"	RC-400	4"
RC-306A	3 1/16"	RC-412	4 1/8"
RC-309	3 1/8"	RC-437	4 1/2"
RC-312	3 1/4"	RC-450	4 1/2"
RC-318	3 1/2"	RC-487	4 3/4"
RC-318M	3 1/2"	RC-500	5"

*Special order only **Special for 100 H.P. Ford V-8 engines.

RING COMPRESSORS

B The ratchet control on this piston ring compressor holds the tension bands in position with no danger of slipping as the piston is inserted into the cylinder, and "V" beads on the lower edge of the main belt keep the tool from entering the cylinder. The two outer tension bands of 1 1/2" wide fine spring steel equalize the tension over the entire width of the belt, so that the entire ring assembly, no matter how stiff, may be gently and firmly compressed into the grooves until flush with the piston.

A slight pressure on the release trip allows the tool to be expanded ready for the next assembly. These tools are simple... fast... efficient and adaptable to a wide range of piston sizes.

RC-40-A Compressor. 2-band model. 2 1/4" to 5" capacity, depth 3".

RC-50-A Compressor. 2-band model. 3 1/2" to 7" capacity, depth 3".

RC-150 Compressor. 4-band model. 3 1/2" to 7" capacity, depth 6 1/4".

PISTON RINGER

C ★**PRS-7 Piston Ringer.** If you are looking for an easy way to install piston rings, here is your answer... and with no danger of breaking or distorting rings, or of injuring your hands. Just slip the ring opening between the jaws of this tool, and squeeze the handles... the Piston Ringer does the rest.

Here's how it works. The first pressure on the handles operates the clamping jaws which grip the ends of the rings securely. After these jaws are clamped on the ring, further pressure on the handles expands the rings evenly so that they will slip over the piston and into the groove. The PRS-7 is 7" long and will handle rings up to 1 1/4" in thickness.

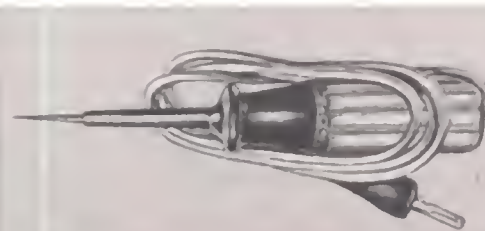


PISTON RECONDITIONING TOOLS

RC-37-K Piston Reconditioning Set. Contains all units listed below, including a ring groove cleaner for all pistons up to 6" diameter complete with cutter blades to fit 3/32" to 3/16" grooves. Attachments include a Chamfer Cutter for cutting a 45° chamfer on the bottom edge of the oil ring groove, a Drill Jig for piloting a 3/32" drill so that an oil relief hole can be drilled at exactly the right angle and a Land Cutter to reduce swelled lands on aluminum pistons.

The chamferer and land reducer are used in place of the cutter wheel... the drill jig is mounted as illustrated above. Uniform tension and non-chatter cutting action is maintained by a compensating spring on the tilting cutter arm.

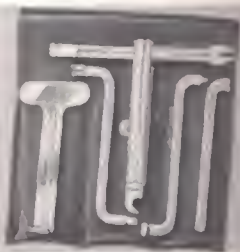
RC-37 Ring Groove Cleaner, with RC-37A Cutter only
RC-37-A Cutter Wheel, 3/32", 1/8", 5/32" and 3/16" Blades.
RC-37-D Drill Piloting Jig
RC-37-E Land Cutter & Holder
RC-37-F Chamfer Cutter & Holder



ELECTRIC TESTER

★**GA-41 Electric Tester.** Spot those troublesome breaks and shorts in a jiffy with this electric tester. Complete in itself, simple and easy to use, it requires no technical training to operate.

The tester consists of a needle-pointed prod, neon tube, plastic handle and a four-foot length of wire with a spring clip attached to the end. The clip is attached anywhere on the car and the point of the tester brought in contact with the wire, switch, etc. When a live circuit is closed, a bulb in the handle of the tester lights up. This makes it easy to trace down the cause of the trouble, whether it be shorts or breaks in single wires or electrical circuits, switches, etc.



TUNE-O-KIT

★**TK-560 Tune-O-Kit.** These handy units provide you with the correct tool to handle aligning and adjustment of the voltage regulators and distributors on most cars. Set contains all the tools listed below in small plastic kit bag 4" x 5" ... just the right size to slip into your pocket.

★**TK-419A Ignition Point Aligning Tool.** For aligning points on Delco and Autolite distributors.

★**TK-426 Voltage Regulator Tool.** Adjusts most types of voltage regulators.

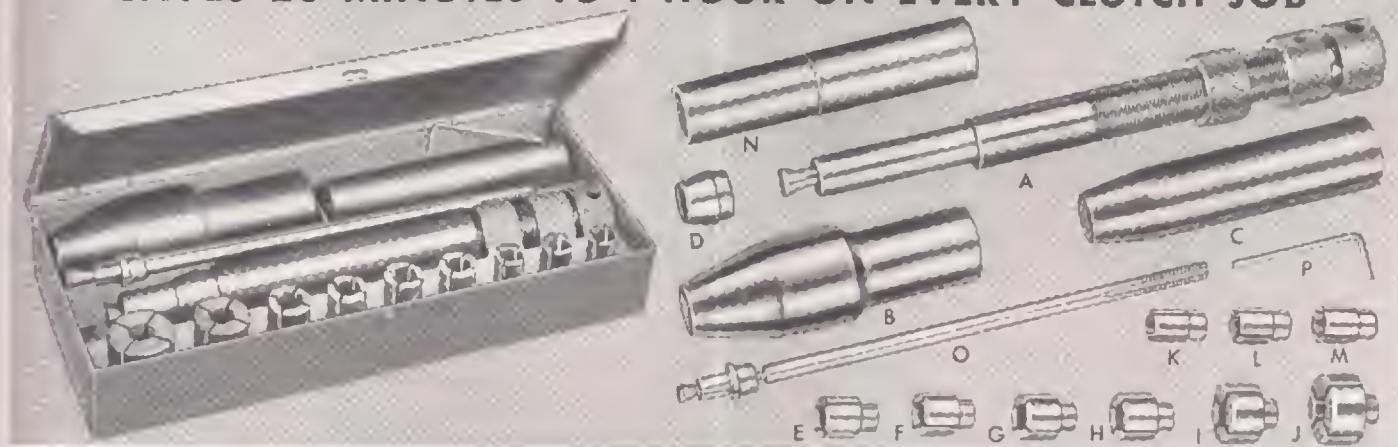
★**TK-439 Offset Screw Driver.** For ignition point clamp screw on Ford V-8.

★**TK-440 Ford Voltage Regulator Tool.** For voltage regulator adjustments.

★**TK-444 Ford Distributor Tool.** Fits the eccentric post for adjusting the vacuum control spring tension in 1949-50 Ford distributors.

Snap-on UNIVERSAL CLUTCH ALIGNER SET

SAVES 20 MINUTES TO 1 HOUR ON EVERY CLUTCH JOB



This Snap-on Clutch Aligner will align single disc clutches on any passenger car or truck. The outstanding feature of this revolutionary tool is that it locks firmly in the clutch pilot bearing and leaves both your hands free to replace and tighten the compressor plate . . . a tremendous asset in efficient clutch repair and replacement. When necessary, the tool can be operated through the bell housing. This aligning tool does away with such slow and tiresome methods as using old splines and taking transmissions apart . . . gives you in one tool a quick, accurate, clutch aligning service for the complete range of automotive single disc clutches.

It is amazingly simple to use, the correct size of expanding pilot is placed on the tool and locks securely in the pilot bearing—the sliding tapered sleeve is adjusted to center the clutch plate and hold it firmly in place while you complete the assembly. A tool of such outstanding time and labor saving qualities is a necessity in every auto repair shop.

PASSENGER CAR SET

A-37D-B Clutch Aligner Set. For passenger cars and light trucks. Contains all units illustrated and described except A-37-6 Truck Sleeve and A-37-17 Pilot. Complete in KR-170A metal box. Box has red enamel finish—size 11" x 4 3/4" x 1 3/4".

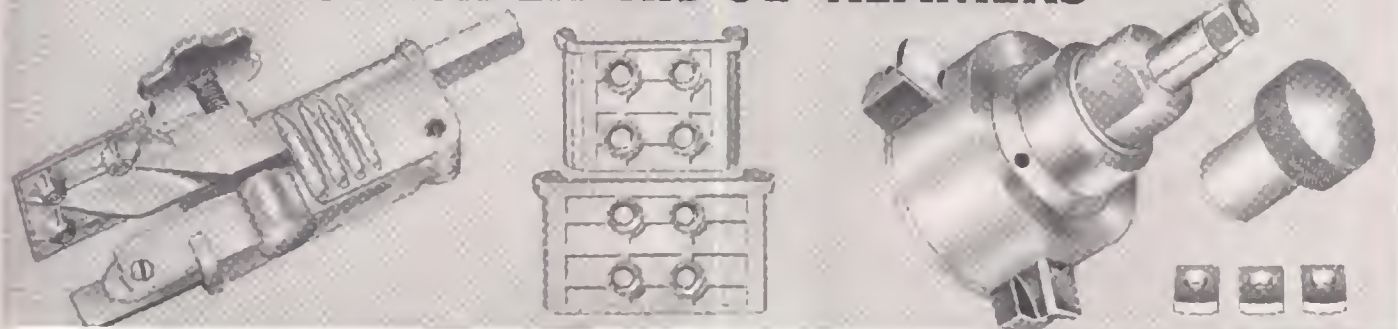
CAR AND TRUCK SET

A-37E-B Clutch Aligner Set. Complete set for all passenger cars and trucks. Contains all units illustrated and described. Complete in the red enameled, KR-170A metal box.

LISTING OF PARTS

[A]	A-37A	Body Assembly
[C]	A-37-2	Standard Sleeve
[B]	A-37-6	Truck Sleeve
[D]	A-37-22	Sleeve Adaptor
[O]	A-37-19	.388" Pilot Assembly
[L]	A-37-11	.585" Pilot
[W]	A-37-9	.620" Pilot
[E]	A-37-12	.663" Pilot
[F]	A-37-18	.713" Pilot
[G]	A-37-10	.745" Pilot
[I]	A-37-13	.781" Pilot
[H]	A-37-14	.979" Pilot
[J]	A-37-17	1.175" Pilot
[K]	A-37-25	3/16" Centralizer Collet
[N]	A-37-26	Centralizer Locator
[P]	AW-3	Hex Head Wrench

CYLINDER RIDGE REAMERS



PASSENGER CAR AND TRUCK RIDGE REAMER

2 3/8" to 4 1/8" Capacity

104-RR Ridge Reamer. A quick-setting, true-cutting cylinder ridge remover that employs the principle of an expansion reamer without its shortcomings. Assures a perfectly smooth wall surface with no danger of undercutting and works equally well on out-of-round cylinders. With a range of 2 3/8" to 4 1/8" it will handle practically all cars and trucks.

Simple to operate . . . just install the correct "Size-Plate" and slip into the cylinder. One "Size-Plate" is permanent part of the tool and two additional sizes are included as illustrated. The reamer is held in the cylinder by 2 ears on the "Size-Plate" and 1 on the cutter blade. This 3 point suspension establishes a fixed depth for the cutter blade in the cylinder . . . the reamer cannot fall through. The special cutter blade is self-aligning and extends down into the cylinder, contacting the wall below the taper. Because of this large wall contact and because the actual reaming is done only by a special carbide insert on the top of the blade, it is impossible to undercut a cylinder wall with this tool. Adjusting knob regulates the spring tension which holds the cutter against the wall and allows it to follow out of round cylinders. Tool has a milled hexagon extension and can be turned with any 1 1/2" wrench.

★104-RR-1 Extra Cutter Blade For the above ridge reamer
2-SP Size Plate Fits cylinders with diameters 2 3/8" to 3 1/4"
3-SP Size Plate Fits cylinders with diameters 3 1/4" to 4 1/8"

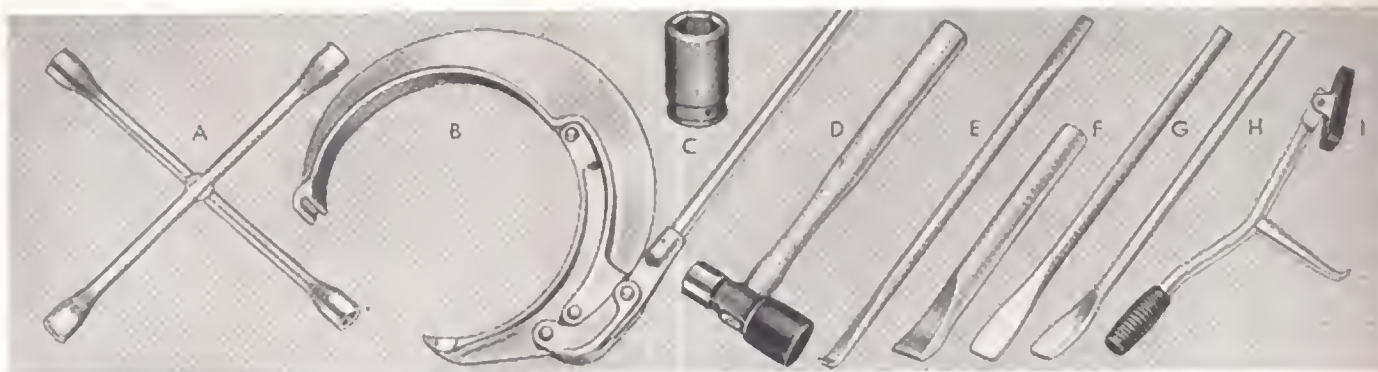
LARGE TRUCK AND DIESEL REAMER

4 7/8" to 8" Capacity

WR-20 Ridge Reamer. A large capacity reamer for truck cylinders up to 6 7/16" in diameter. The 3 blades have cutting edges on the top part only . . . bottom part acts as a pilot to prevent undercutting. Strips on top of the blades ride on top of the block and prevent the tool from falling through. Amount of cut is regulated by turning the 1/2" square on the center screw. Once the reamer is set, the knurled operating knob slips over the screw and acts as a convenient grip to hold the tool while it is being turned with a 1 1/2" wrench. For ridges deeper than 7/16" a set of filler strips is included to allow the reamer to slide down into the cylinder. All parts illustrated above are included with the WR-20 reamer.

Additional Blades and Parts

WR-20-1 Body
★WR-20-4 Set of 3 blades and strips, 4 7/8"-6 7/16" cap.
★WR-20-5 Set of 3 blades and strips, 6 7/16"-8" cap.
WR-20-6 Set of filler strips and screws
(State blade number the strips are for.)



TIRE SERVICE TOOLS FOR CARS AND TRUCKS

A Rim Wrenches. Powerful 4-arm speed tools. Socket ends broached extra deep in order to clear bolt ends.

★400 Rim Wrench. $\frac{5}{8}$ " $1\frac{1}{4}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " hex openings. Arms 8" long.

★404B Truck Rim Wrench. Openings: 1" hex, $1\frac{1}{2}$ " hex, $1\frac{3}{4}$ " hex with $\frac{3}{8}$ " recessed hex, $1\frac{5}{8}$ " hex with recessed $1\frac{3}{16}$ " square.

D BH-38-A Combination Tire Hammer. Drop-forged steel head has a $1\frac{1}{2}$ " face. Durable hard-rubber tip is 3" wide. Tips are easily replaced. A 15" hickory handle provides leverage for heavy blows. Weight 2 lbs. 4 ozs.

BH-38-2. Replacement Rubber Tip.

★24-H. Replacement Hickory Handle.

E ★TR-100 Rim Tool. Here's a tool that really does the job on split rims and rim lock rings used on older cars and practically all trucks. $19\frac{1}{4}$ " long, with ends $\frac{1}{16}$ " and $\frac{5}{8}$ " wide.

F T-254-B Tire Remover. Removes tires speedily, easily, on all Chrysler line cars with safety rim wheels. The compound leverage forces rusted-on tires away from the rim with safety. With this tool you can easily remove the tire from the wheel without taking the wheel off the car.

G TR-101 Truck Tire Tool. Here is an excellent persuader for breaking loose the tire bead from the rim on truck wheels. The tool is forged from $1\frac{1}{4}$ " round stock to provide a large anvil end for heavy blows. The blade end has just the right radii to force the tire bead without tube damage. 12" long.

H GA-78 Hub Cap Tool. There's no danger of scratching or otherwise marring hub caps—or ruining screw driver tips—if you have this tool. It's fast and simple to use . . . place the rubber flexible head on the hub cap, slip the hook under one edge and pull.

I Budd Wheel Sockets. Built to take the shocking blows necessary to break loose those frozen nuts on Budd Wheels. Shallow broached. Nickel plated.

BW-482 Budd Wheel Socket— $1\frac{1}{2}$ " single hex opening. $\frac{3}{4}$ " square drive.

BW-483 Budd Wheel Socket— $1\frac{1}{2}$ " single hex opening. 1" square drive.

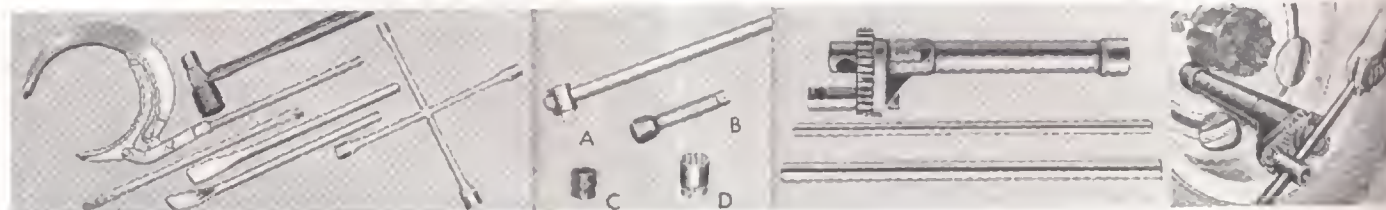
BW-626 Budd Wheel Socket— $1\frac{3}{16}$ " single square opening. $\frac{3}{4}$ " square drive.

BW-726 Budd Wheel Socket— $1\frac{3}{16}$ " single square opening. 1" square drive.

Tire Removing Tools. Designed to remove tires from drop center rims. The well-rounded, wide blades give plenty of purchase area without danger of injuring the tube. Forged from $1\frac{1}{16}$ " round stock and available in straight or curved blade models. Blades are $1\frac{3}{8}$ " wide, overall length 18".

G TR-103 Straight Tire Tool.

H TR-102 Curved Tire Tool.



6-PIECE TIRE TOOL SET

WT-60-A Set. Contains the six essential tire tools described above and listed below. Equips your shop or service station with the necessary tools for passenger car and light truck tire service.

★400. Rim Wrench. BH-38. Tire Hammer. TR-102. Tire Tool. TR-103. Tire Tool. ★TR-100. Rim Tool. T-254-B. Tire Remover.

BUDD WHEEL SET

WT-40A Set. Assembled expressly for removing Budd wheels. Set consists of following parts: **A** L-53 Sliding Bar, **B** L-63 Extension, **C** BW-726 $1\frac{3}{16}$ " Square Socket **D** BW-483 $1\frac{1}{2}$ " Hex socket.

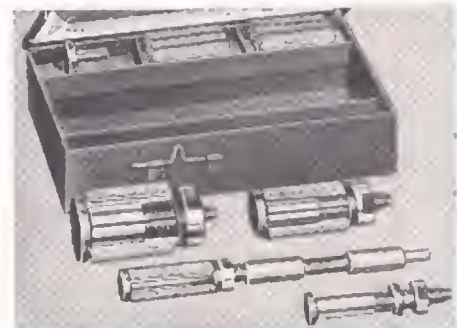
POWERENCH FOR BUDD WHEELS

GA-83 Powerench. A powerful geared wrench for mounting and removing Budd wheels on the road or in the shop. It's easy for one man to use, for once mounted on the work it supports itself leaving both hands free for the actual turning operation. An added safety feature against half-done jobs is provided in the unit as the outer hex nut cannot be tightened if the inner nut is still loose when a Powerench is used. Includes all units illustrated above.

HYDRAULIC BRAKE CYLINDER HONE SETS

Simple, sturdy construction makes this hone easy and inexpensive to operate yet assures long satisfactory service with perfect results. Can be used for all passenger cars and trucks including the new Chrysler line cars. Seven sizes of bodies plus three sizes of blades combine to give a capacity of $\frac{1}{16}$ " to $2\frac{3}{4}$ ".

Abrasives, blades, and bodies are all interchangeable, thus eliminating the need of a large assortment of abrasives and blades. The flexible driving shaft provided is adaptable for use on $\frac{1}{4}$ " to $\frac{1}{2}$ " capacity drills and threads onto all sizes of bodies. The abrasive cloth is a special type for this work and is mounted on a metal back for fast, easy changing as well as long service. Illustration shows the 925 set with a range of $\frac{3}{16}$ " to $1\frac{1}{4}$ " hone diameter.



CONTENTS OF SETS

Stock No.	Description	Set 925	Set 876-S	Set 876	Set 877	Set 878	Set 879	Set 880
876-SB0	$\frac{1}{4}$ "- $\frac{1}{2}$ " Hone Body		1					
876B-D	$\frac{1}{4}$ "- $\frac{1}{2}$ " Hone Body	1		1				
876B-S	$\frac{1}{4}$ "- $\frac{1}{2}$ " Hone Body	1		1				
877B	$1\frac{1}{4}$ "- $1\frac{1}{2}$ " Hone Body and Special 1" cup screw	1			1			
878B	$1\frac{1}{4}$ "- $1\frac{1}{2}$ " Hone Body	1				1		
879B	$1\frac{1}{4}$ "- $1\frac{1}{2}$ " Hone Body						1	
880B	$2\frac{1}{4}$ "- $2\frac{3}{4}$ " Hone Body							1
896-1	Small Blade	3	3	3	3	3	3	3
897-1	Medium Blade	3	3	3	3	3	3	3
898-1	Large Blade	3	3	3	3	3	3	3
899-1	Flexible Driving Shaft	1						
829	Coarse Abrasives	18	3	9	9	9	15	15
	Fine Abrasives	9	3	3	3	3	5	5
	Special Metal Box Cardboard Box	1						
			1	1	1	1	1	1

899-C One dozen coarse abrasives.

811-F One dozen fine abrasives.

SPECIAL FORD SERVICE TOOLS THAT SAVE



SPRING SPREADER FOR FORD CARS AND TRUCKS

Pat. No. 2,212,090

SV-9023-38 V-8 Ford Spring Spreader Set. A full seven tons of smooth, friction-free power to spread the stiffest springs with ease. Any mechanic can change springs quicker with this tool light and easy to handle, its just about the fastest and simplest tool ever developed for the job. Sturdy, alloy steel seamless tubing provides the utmost strength and safety. Parts are quickly interchanged to adapt the tool to various springs. The ball-bearing ratchet assembly takes the thrust from both ends and works freely under the greatest pressure. Convenient ratchet final lever reverses action instantly... the pressure screw has a low pitch thread for easy ratchet action and smooth, steady, safe power. Contains all parts listed below.

A-90-A24.....Ratchet Handle Assembly
A-90-33.....Tube Housing Assembly
A-90-A13.....Pressure Screw
A-90-36....."V" Block (2 req'd)

A-90-40.....Tube Coupling
SV-9023-38-1.....16" Tube
SV-9023-38-2.....23" Tube
SV-9023-38-3.....28" Tube

DRAG LINK AND BRAKE WRENCHES

[A] ★050 Ford Drag Link Screw Driver. A short bladed offset screw driver especially suitable for Ford drag link work. 7 1/2" long, made of octagon stock. Blades are 3/4" wide and 3/8" thick. A handy tool and one for which you will find many uses.

[B] S-9078-A Ford Brake Adjusting Wrench. Use this wrench for speeding up brake adjusting work on all model Fords... the 11" length allows you plenty of leverage to break loose rusted-on or frozen nuts... the 1/4" and 1/2" double square openings handle both passenger cars and trucks. It does an accurate adjusting job easier and faster than any other tool you could use. Drop forged for strength, chromium plated.

[C] S-8652-A Ford Brake Eccentric Wrench. A special wrench to fit the brake eccentric adjusting screw on 1939 and later Ford passenger car and truck hydraulic brakes. Just right for fast easy work. Overall length of tool is 8 1/2". Small heads are braced with 5/16" and 3/4" wrench openings.



[A] S-8659A Oil Gauge Wrench. A necessity for removing or installing the oil gauge unit in Ford blocks. The 3/4" open-end fits the unit perfectly and the "U" shape takes care of clearance problems. The long overall length of 16 1/2" brings the drive end up over the block to where it can be turned conveniently with any 3/4" square drive handle.

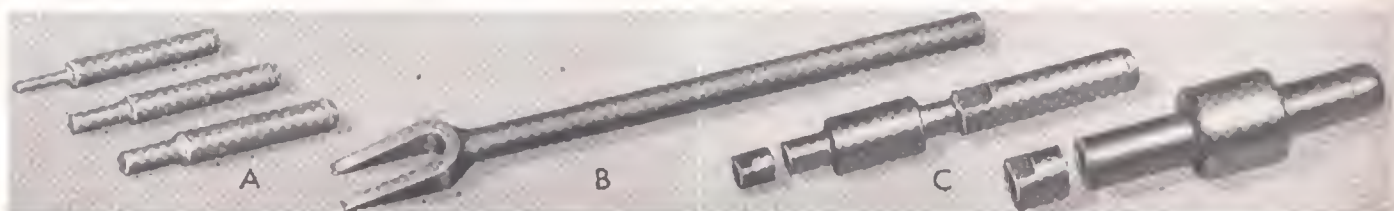
[B] S-8666 Cylinder Head Wrench. Needed for cylinder head work on 1919 and 1950 Fords, Lincolns and Mercurys. The special bends on this crowfoot boxsocket get the nut that is under the oil filter bracket as well as those that are partially hidden by heater and other accessories. Can be used with the TQ-150 Torquometer shown on page 34. 3/4" stock, opening is 11/16" double hexagon, 1/2" square drive, overall length 10 1/2".

[C] S-8558A Distributor Boxsocket. A handy tool for distributor flange nuts on Fords, Packards and Cadillacs as well as fuel pumps, water pumps and other accessories on a variety of cars. Will prove an extremely useful tool for work where clearance over obstructions is needed. The 1/2" opening is double hex, stock diameter 3/8". Height over obstructions is 4 1/8".

[D] ★FA-12-L Brake Adjusting Tool. Designed to meet the requirements of 1949-50 Ford brake adjustment work. The 3/4" hexagon bit extends 19 1/8" from the socket to provide sufficient length for convenient operation. Bit is individually heat treated to provide exceptional strength and toughness and can be easily replaced. Overall length 28".

★FA-12-3 Extra Bit..... 2" overall length.

[E] ★S-9045 Ford Hub Bolt Setter. Here's a fast and efficient way of resetting Ford hub bolts that will give you solidly anchored bolts every time. The S-9045 is designed with 2 different ends, one flat and one tapered. After the bolt is inserted in the drum hole the S-9045 is threaded on the bolt with the flat side toward the drum. Turning the Bolt Setter pulls the bolt through the drum and seats the head tightly against the back side of the drum. The Bolt Setter is then reversed to bring the tapered side into use. Four grooves are milled on this end to form cutting teeth, which when turned into the drum, cut a flange and turn it against the bolt to anchor it securely. The S-9045 is threaded to fit 1/2"-20 bolts. This hexagon shaped tool can be turned with a 3/8" wrench.



A Wrist Pin Drivers. These tools remove Ford wrist pins without the use of a piston vise. Insert the end of the proper size driver into the piston pin and tap the end of the tool... the pin can be driven out easily while the assembly is held in the hand. Three sizes are available to handle all V-8 and 6 cylinder models. The S-8669 is for V-8 models with a heavy duty wrist pin, the S-8670 is for V-8 standard pins and the S-8671 takes care of the 6 cylinder standard models. All are 6" long.

S-8669 Wrist Pin Driver. Outside diameter .707", end diameter .592".

S-8670 Wrist Pin Driver. Outside diameter .707", end diameter .490".

S-8671 Wrist Pin Driver. Outside diameter .875", end diameter 1/2".

[B] ★S-8658 Shock Absorber Separator. Designed to remove Ford shock absorber link ball joints from their settings. The 1 1/8" jaw opening is tapered and provides a wedge-like action for forcing out the joint. An 18" handle puts the anvil end out in the open where you'll have plenty of room for hammer blows. Forged from 3/4" diameter stock.

NEW TOOL NOT ILLUSTRATED

★9047 Pronged Socket. 1949-50 Fords make use of a partially slotted retaining nut to hold the heater, windshield wiper and light switch controls in the panel. The 3/4" x 1 1/4" prongs on this socket fit these nuts perfectly with no danger of marring or damaging them. Socket O.D. is 3/4", length 1". Handle end is braced for 1/2" square drive handle.

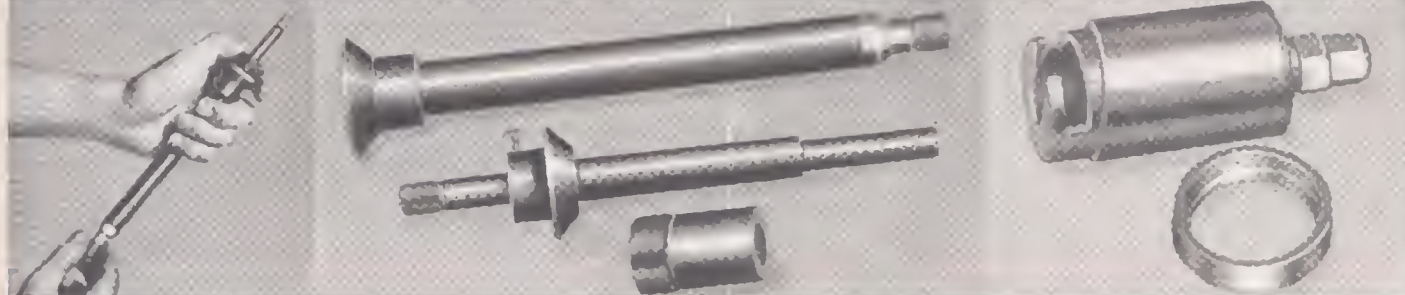
NOTE: Additional Ford special tools listed on pages 42 and 41.

[C] ★S-9090-BK Bushing Driver Tool Set. Remove Ford spring shackle or perch bushings, or insert new ones with this efficient tool. Fast, safe, and easy to use, it will quickly pay for itself in time saved on these operations. To remove bushings, the threaded end of the Driving Shaft is screwed onto the bushing which is driven out by hammer blows on the Driver. To insert new bushings the Pilot Nut is screwed onto one end of the bushing and inserted into shackle. The Collar is placed over the bushing to guide and protect it during the operation. Driving Shaft is screwed onto outer end of bushing which is then driven into place with hammer blows on the Driving Shaft head. Contains all units listed below.

Individual Sets for Ford Cars or Trucks

★S-9090-B Car Set	★S-9090-K Truck Set
★S-9090-B-1 Driver	★S-9090-K-1 Driver
★S-9090-B-2 Collar	★S-9090-K-2 Collar
★S-9090-C-5 Nut	★S-9090-K-3 Nut

TIME AND MONEY ON ALL JOBS !



VALVE MICROMETER GAUGE

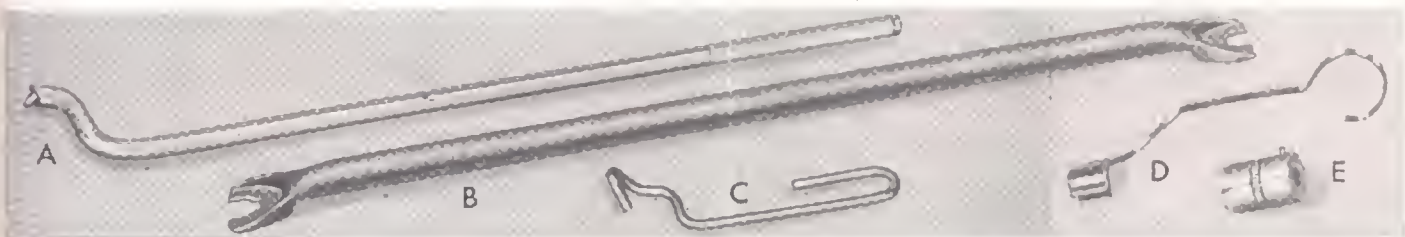
MG-1 Ford Valve Micrometer Gauge. Use the Snap-on Ford Valve Micro-Gauge and you'll be assured that each individual valve fits perfectly into the block. It was designed for Models A, B, V-8 Ford, (except 60 H.P.), Mercury and Lincoln Zephyr. No more fumbling—no more hit or miss methods when you use this tool. You'll know the exact valve setting to a minute fraction for this gauge is graduated in .001" . . . and you will be sure to do the job accurately. The gauge is placed in the valve guide hole and rests on the tappet . . . the "V" block rests

on the valve seat and is set at that point on the gauge. It is then removed, and placed inside the micrometer sleeve with the "V" block resting snugly in the sleeve . . . the micrometer is adjusted till its anvil just touches the bottom of the gauge shaft and the reading shows the amount of grinding necessary on that particular valve. Each valve can be tested to its own reading after grinding until the correct point is reached. After using this tool and finishing the job, you will know for certain that the valves are accurately set.

VALVE ASSEMBLY PULLERS

S-9095-A Valve Assembly Puller. Does a fast, efficient job . . . prevents broken valve lifters and parts. Compress spring to raise valve and slip this puller into position around valve head . . . then tighten the nut to pull valve assembly. A ball thrust bearing takes the load and makes it easy to pull the tightest Ford valve assembly. Housing is cut at an angle to fit motor block of Ford "V-8" and Mercury.

S-9095-B-8 Adaptor. Adapts above tool to Lincoln-Zephyr.



[A] S-8667 Valve Keeper Pusher. Here's a tool every mechanic working on Ford motors will want to have in his tool kit. It makes easy work of pulling the most stubborn keepers on Ford cars without pulling the keeper holes. The nose of this tool is especially designed and flattened to give tremendous leverage while the hook is set at a special angle to keep the strain off the keeper hole. Just hook it on—push—and out comes the keeper . . . it's as easy as all that. For best results keep pusher at right angles to the valve. Hook is replaceable if damaged.

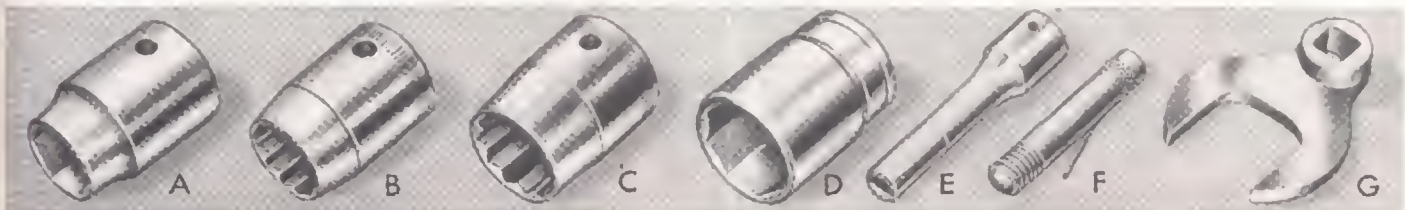
S-8667-2 Replacement Hook.

[B] S-9088-B Ford Valve Lifter. A lifter especially designed for valve service work on Ford cars. Different size ends work on both V8-85 and V8-60 series cars giving you two tools for the price of one. Heads are individually drop forged from finest quality steel, then properly hardened and tempered to give maximum service under all operating conditions. Extra strength is incorporated in the heads by the side ribs which reinforce but do not interfere in any way with the use of the tool. Openings are $\frac{1}{2}$ " and $\frac{3}{4}$ ", stock diameter $\frac{3}{4}$ ", overall length 24".

[C] ★GA-31 Ford Valve Tool. You really speed up the tearing down or rebuilding of Ford valve assemblies by the use of this handy little tool. Simple to use . . . just hook it around the valve stem and then force it against the valve guide. The leverage afforded compresses the valve spring easily and allows you to slip out half of the valve guide. With the removal of the tool the other half of the guide is then easily released. Reverse the above procedure, and you can replace the units in no time at all. The GA-31 will work on all Fords and Mercurys with split valve assemblies.

[D] ★SS-9010-A Valve Bushing Tool. Raise valve and slip this tool around the valve stem between the bushing and the valve flange. Tapping the valve will drive the bushing down so that the keeper is easily removed. The flat spring handle allows the tool to be placed in position without falling through port.

[E] ★SV-9011 Valve Grinding Bushing. A split bushing with spring clip retainer. Fits over valve stem and into valve bushing opening for valve grinding operation. Pin prevents it from falling through. Can also be used for checking tappet clearance.



Connecting Rod Sockets. The three sockets listed below were designed especially for Ford connecting rod nut work and have turned down noses with thin walls to handle the clearance problems that are present. Though sufficiently strong for this type of work they are not built for ordinary nut turning and should not be used in place of standard sockets. All have $\frac{1}{2}$ " square drive.

[A] ★S-9025-C Socket. A $\frac{1}{16}$ " single hex opening for Ford V-8. Outside diameter $\frac{3}{32}$ ", nose diameter $\frac{3}{16}$ ", length $1\frac{1}{4}$ ".

[B] ★S-9025-A Socket. Has $\frac{3}{16}$ " double hex opening for Ford V-8. Outside diameter $\frac{1}{2}$ ", nose diameter $\frac{3}{16}$ ", length $1\frac{1}{4}$ ".

[C] ★S-9001 Socket. For Model A Fords. $\frac{2}{32}$ " double hex opening, outside diameter $\frac{1}{16}$ ", nose diameter $\frac{3}{16}$ ", length $1\frac{1}{4}$ ".

[D] S-8664 Windshield Wiper Socket. This special $\frac{3}{4}$ " octagon opening socket fits the windshield wiper nuts on Ford cars. Replacement of wiper arms can be handled a lot faster with this socket and you won't have to worry about damaging the plating on the nuts and having them rust which could happen if pliers are used. Outside diameter 1", length $1\frac{1}{4}$ ". $\frac{3}{8}$ " square drive.

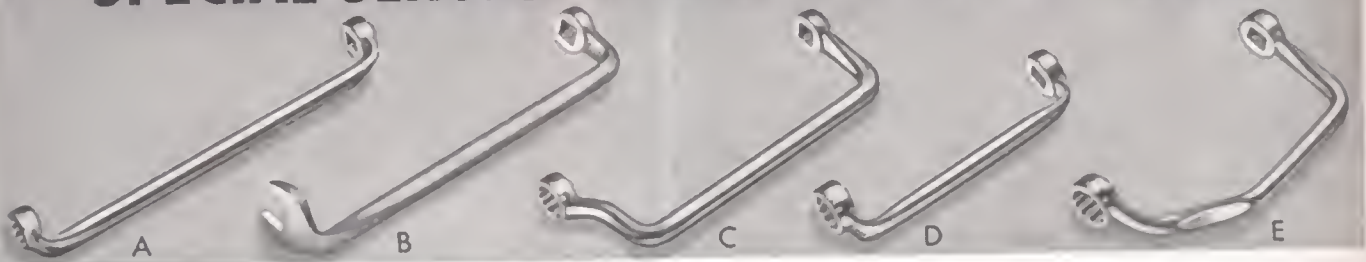
[E] ★S-9046 Distributor Socket. Spark advance adjustment on 1949-50 Ford distributors has been changed to incorporate an eccentric post which regulates the vacuum control spring tension. This eccentric post has been cut away on one side to give a half circle appearance and ordinary wrenches will not fit it. The S-9046 gives you a perfect fit and allows you to make fine adjustments every time with no danger of damaging the post. Fits $\frac{3}{4}$ " square drive handles, length 2".

[F] S-9080 Oil Pan Holding Screw. Affords a fast, easy means of holding Ford oil pans in position while the cap screws are being replaced. Two of these screws are turned into opposite sides of the crank case flange and the oil pan is then slipped over these screws. The springs will catch on the oil pan flange and hold the oil pan so that both hands can be used to replace the cap screws.

[G] Castor-Camber Crowfoots. Caster and camber adjustments on the 1949-50 Ford, Mercury, and Lincoln cars are almost impossible to make with ordinary wrenches. Here, however, are a couple of wrenches that will get at these nuts and do the job. The S-8661A is for Ford cars and the S-8662A fits Mercury and Lincolns. Jaw thickness $\frac{1}{4}$ ", $\frac{1}{2}$ " square drive.

★S-8661A Crowfoot Wrench. $1\frac{1}{16}$ " opening.
★S-8662A Crowfoot Wrench. $1\frac{1}{16}$ " opening.

SPECIAL SERVICE TOOLS for "G. M." CARS



A S-8164 Oldsmobile-Pontiac Starter Wrench. Here's a Crow-foot Boxocket wrench that really sneaks in behind the starter housing and motor block to reach those hidden nuts you can't even get your fingers on. Developed expressly for Oldsmobile and Pontiac it is also useful on many other cars as well. The $\frac{3}{4}$ " wrench opening is double hex broached while the drive end has been broached to receive any $\frac{1}{2}$ " square drive handle. Overall length is 10".

B S-9524 Chevrolet Starter Wrench. For 1949 and 1950 Chevrolets. The top mounting bolt on these starters cannot be reached with ordinary wrenches. $\frac{3}{4}$ " open end is $\frac{3}{16}$ " thick. Overall length 8 $\frac{1}{16}$ ", stock diameter $\frac{9}{16}$ ". Fits $\frac{1}{2}$ " square drive handles.

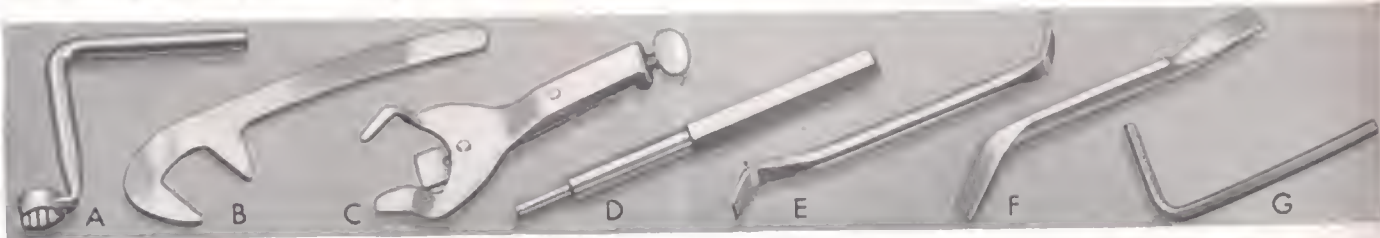
C S-8663 Pontiac-Studebaker Head Wrench. Reaches "hidden" head bolts on these cars for correct bolt tensioning. Boxocket opening is $1\frac{1}{16}$ " double hex broached, length 8 $\frac{1}{16}$ ". $\frac{1}{2}$ " square drive.

D Cylinder Head Tools. Especially designed to simplify the job of servicing Buick cylinder head stud nuts. Fits $\frac{1}{2}$ " square drive wrench handles. Because uniform tension of these important nuts is so necessary to a smooth running job, we recommend a Snap-on Torquemeter (page 34).

S-9825 Cylinder Head Wrench. $\frac{1}{2}$ " Boxocket opening.

S-9825-A Cylinder Head Wrench. $\frac{3}{4}$ " Boxocket opening.

E S-9513-C Chevy Cylinder Head Wrench. This $\frac{3}{4}$ " boxocket reaches around the rocker arms of Chevrolet cars for easy tightening and tensioning of cylinder head stud nuts and will greatly simplify and speed-up this work. We recommend that this tool be used with the TQ-150 $\frac{1}{2}$ " square drive Torquemeter shown on page 34. This sturdy wrench is made of $\frac{1}{2}$ " stock and has a $2\frac{1}{4}$ " offset for rocker arm clearance. Overall length is 8 $\frac{1}{2}$ ". Fits all $\frac{1}{2}$ " square drive handles.



A S-9516 Chevy Dash Control Wrench. A bent handle flare nut wrench for Chevy choke and throttle control nuts and Ford heater control nuts. Flare nut opening allows the tool to slip over wires and cables to reach the nuts and the $3\frac{1}{2}$ " offset provides clearance over surrounding instruments. $\frac{3}{16}$ " double hex opening, diameter of stock $\frac{1}{16}$ ". Handle length 3 $\frac{3}{4}$ ".

B S-8271 Pontiac Coster-Comber Wrench. For 1949 and later Pontiac models. This thin, curved handle wrench provides sufficient clearance between the low pressure tires and the frame to do the job quickly, accurately and easily. The head of the wrench is only $\frac{1}{16}$ " thick with a $1\frac{1}{4}$ " opening. 8" long.

C S-9580 Universal Joint Tool. For Chevy and Pontiac universal joint work. Holds the inner section in position while the joint is being assembled. Slip the engaging jaws under the universal section and screw the sliding jaw tight. Once the tool is in position both hands are left free.

D Valve Guide Insertor-Extractor. Tools are self-entering and accurately machined to assure proper alignment of tool and valve guide. Will not injure the valve guide. Both tools are 7 $\frac{1}{2}$ " long.

VG-101 Valve Guide Insertor-Extractor. For Chevrolet.

VG-102 Valve Guide Insertor-Extractor. For Buick (40 series).

E S-9153-A Pontiac Brake Adjusting Tool. Specially designed to adjust brakes on Pontiac cars. It is made to work around or through all interfering parts such as frame fittings, etc. $\frac{1}{2}$ " wide blades are just the right thickness to do an accurate, fast, and easy job. Length 7 $\frac{1}{2}$ ".

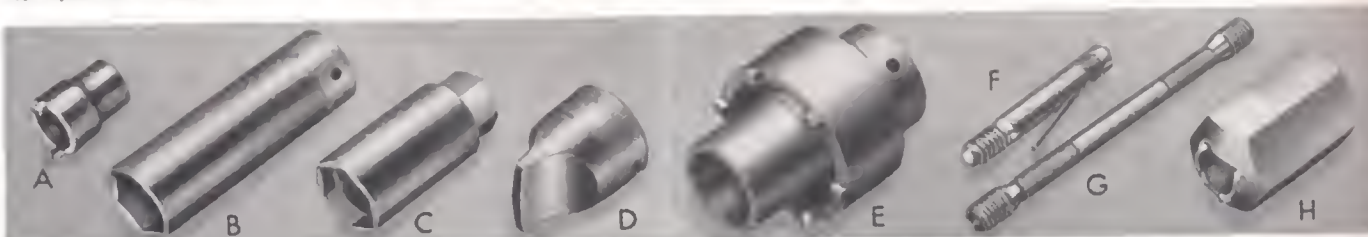
F S-9523 Chevy Brake Adjusting Tool. A short, star nut turning tool that is necessary for brake adjusting work on Chevy trucks with overload springs. Different angles at each end take care of the clearance problems brought about by the additional springs. Will also prove ideal for other cars and trucks. Blades are $1\frac{1}{2}$ " wide. Overall length of tool 5 $\frac{1}{2}$ ".

G S-9566 Coster-Comber Adjustment Wrench. For the hex head set screw adjustment on most GM cars. Fits the screw perfectly allowing a fine accurate adjustment every time. Wrench size is $\frac{1}{2}$ " with a length of 2 $\frac{1}{4}$ ". Handle length is 4 $\frac{1}{4}$ ". Carefully hardened for long service.

FA-8-L Coster-Comber Adjustment Wrench. (not illustrated) A hex head wrench (similar to the FA-12-L hex head wrench shown on page 84) with a long bit for Chevy and older GM cars. Overall length 21 $\frac{1}{2}$ ". Wrench size $\frac{1}{2}$ " sq. drive. Bit protrudes 1 $\frac{1}{16}$ " from socket.

FA-8-L-1 Socket only.

FA-8-L-2 Bit only. 1 $\frac{1}{4}$ " long. 6-40 Set screw for above.



A S-9518 Chevy-Pontiac Starter Button Socket. Designed to remove the chrome plated retaining collar that holds the starter button in place on the dash. The socket is hollow to fit over the button allowing the two prongs to slip into the retaining ring slots. Add this socket to your set and eliminate the danger of marring or scratching these parts. $\frac{3}{8}$ " long. $\frac{1}{4}$ " square drive.

B S-9803-D Spark Plug Socket. Especially designed for spark plug work on Buick and Nash cars with 14 mm. plugs. The $1\frac{1}{16}$ " single hexagon opening fits these plugs perfectly and the extra socket depth protects the top from damage. Can be used with any $\frac{1}{2}$ " square drive handle or with a Torquemeter (shown on page 34). Overall length 3 $\frac{3}{4}$ ".

C S-9704 Cadillac Spark Plug Socket. The No. 1 plug on 1949 Cadillacs is located directly under the generator making it impossible to remove with extra deep sockets. The S-9704 has a $\frac{3}{4}$ " hex milled on top so it can be turned with a open-end wrench or Boxocket after it has been installed on the spark plug. A $\frac{3}{8}$ " square is also broached in the drive end. $1\frac{1}{16}$ " shallow broached, single hex opening. Overall length 2 $\frac{3}{16}$ ".

D S-9522 Chevy Steering Worm Adjusting Socket. A screw driver type socket designed especially for making steering worm gear adjustments on Chevy trucks. The strong $1\frac{1}{4}$ " x $\frac{1}{2}$ " blade edge is curved to fit perfectly. Overall length 11 $\frac{1}{16}$ ". Fits all $\frac{1}{2}$ " square drive handles.

E Chevy Truck Axle Bearing Sockets. The tubular sleeve fits the axle housing and aligns the tool so that the prongs fit exactly into the slotted adjusting nut and the lock nut. The S-9511 is for 1 $\frac{1}{2}$ " ton and over trucks and will fit both old and new style nuts. 2 $\frac{1}{4}$ " O.D., length 3 $\frac{3}{4}$ ". The S-9521 works on $\frac{3}{4}$ " and 1 ton models and has a 2 $\frac{1}{16}$ " O.D. and is 3 $\frac{3}{4}$ " long. Fit $\frac{3}{4}$ " square drive handles.

S-9511 Bearing Adjusting Socket

S-9521 Bearing Adjusting Socket

F S-9595 Pan Holding Screws. For replacing Chevy oil pans. Use two screws in bolt holes on opposite sides of crank case flange; slip oil pan over until springs catch and hold the pan in place.

G GA-55 Chevrolet Head Locater. Remove head bolts and screw the dowels into bolt holes. Shaft unscrews itself when dowel is seated. Tapered tops of dowels extending above cylinder block serve as hinges in removing, and as locaters when returning the head. Shaft is 5" long, $\frac{3}{4}$ " diam.

GA-55-1 Shaft only

GA-55-2 Chevrolet Dowel

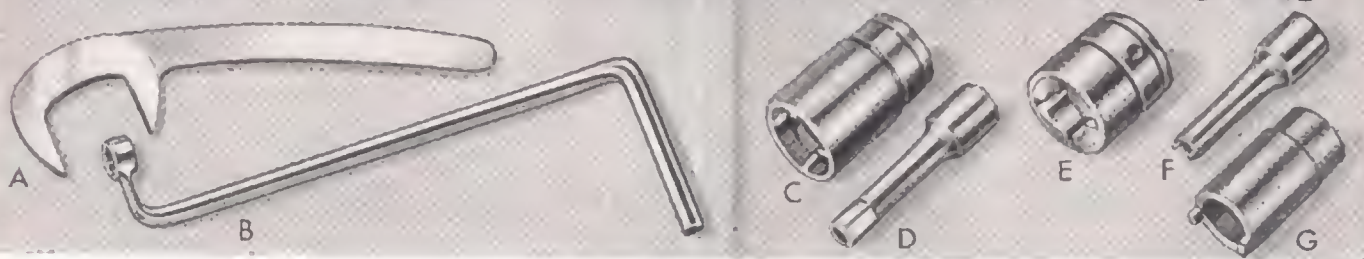
GA-55-3 Extra Buick Dowel

H Chevy Hub Bolt Setters. Use the flat end to pull the bolt head tight against the drum. The end with the four milled grooves is then used to cut a flange against the stud and hold it securely. Use with a $\frac{3}{8}$ " wrench.

S-9515 Hub Bolt Setter. $\frac{1}{2}$ " x 20 thread, 1 $\frac{1}{4}$ " long.

S-9520 Hub Bolt Setter. $\frac{9}{16}$ " x 18 thread, 2 $\frac{1}{2}$ " long.

SPECIAL SERVICE TOOLS for CHRYSLER CARS



A **Comber-Caster Wrenches.** The thin heads fit between the arms on either side of the adjusting nut and simplify the eccentric adjusting job. Curved handles make it easier to work between the frame and the new air cushion tires.

S-9463 Wrench. 1 $\frac{1}{2}$ " Size, 8" long.

S-9460A Wrench. 1 $\frac{1}{16}$ " Size, 8" long.

S-9461A Wrench. 1 $\frac{1}{16}$ " Size, 8" long.

S-9462A Wrench. 1 $\frac{1}{16}$ " Size, 8" long.

B **S-9467A Distributor Wrench.** A $\frac{3}{16}$ " hexagon boxsocket for loosening or removing the distributor on Chrysler, Dodge, DeSoto and Plymouth cars . . . reaches around distributor to do a fast job. Distance from wrench to cross handle is 7 $\frac{1}{2}$ ".

C **S-9469 Heater Switch Socket.** Designed to fit the chrome plated indented switch retaining nut used on Models 100 and 300 heaters in 1949 Chrysler cars. Also fits dash controls and switches on Dodge 1949-50 trucks and 1950 International Trucks. Use this socket and prevent damage to these decorative retaining nuts. 1 $\frac{1}{2}$ " long, 1 $\frac{1}{16}$ " O.D., $\frac{3}{16}$ " square drive.

E **S-9458 Dash Nut Socket.** A pronged socket machined to fit panel switch and control nuts on Chrysler cars, $\frac{1}{4}$ " square drive.

D **S-9468 Light Switch Socket.** Essential for removing the light switch on 1949 Chrysler line cars, as well as heater control switches on models 500 or 550 heating units. The hollow shank fits over the knob pin and the $\frac{1}{2}$ " external hex fits into the externally threaded, chrome plated, retaining nut. Use this socket for fast service without fear of damaging the plated nut. 1 $\frac{1}{2}$ " long, $\frac{1}{4}$ " square drive.

E **S-9549A Wing Nut Socket.** This is a dual purpose socket for Chrysler work. One set of slots are $\frac{1}{16}$ " wide and $\frac{1}{4}$ " deep and fit the valve cover wing nuts—use a speeder with this socket and avoid burning your hands on a hot manifold. The wing nut stays in the socket when unscrewed . . . or it can be placed in the socket for re-installing. The other slots are $\frac{1}{8}$ " wide and $\frac{1}{16}$ " deep for turning drain cocks . . . used with a speeder or extensions you can easily service drain wing nuts. $\frac{3}{16}$ " square drive.

G **S-9466 Dash Control Nut Socket.** A pronged socket needed for certain dash control nuts on Chrysler line cars. Also needed for windshield wiper and starter switch on Dodge and Plymouth. 1 $\frac{1}{2}$ " long, $\frac{3}{16}$ " O.D., $\frac{3}{16}$ " square drive.

New Tools Not Illustrated

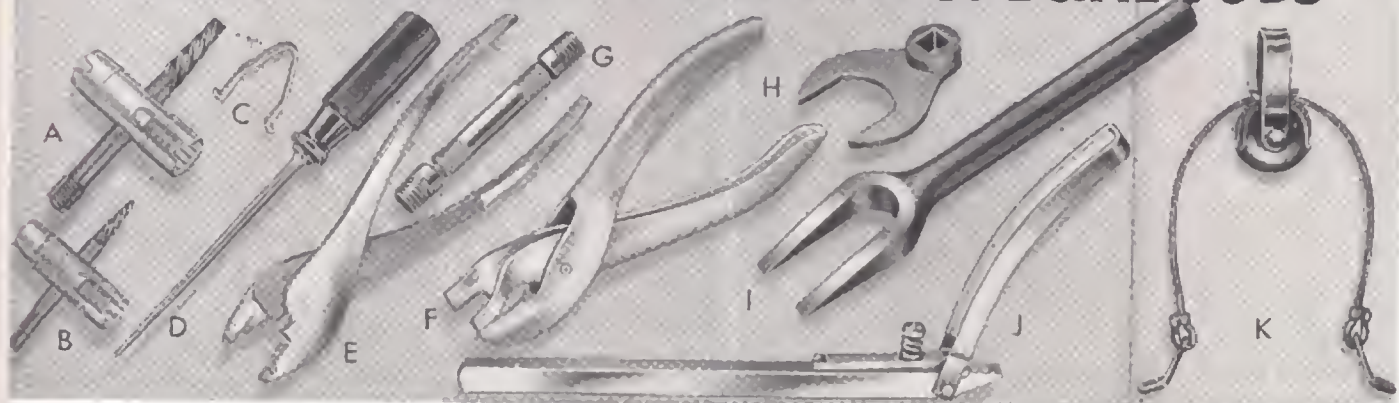
S-9517 Pinion Flange Nut Socket. Has a 1 $\frac{1}{2}$ " opening and a very thin tapered nose to fit the pinion flange nut on some models of Chevrolet, Dodge, GMC and International trucks which use the Eaton 2-speed axle. There are some other special axles that require this socket. $\frac{1}{4}$ " square drive.

S-8169 Pronged socket for Nash and Oldsmobile. Needed to turn the retaining nut on windshield wiper, weather eye and radio controls on 1950 Nash, and windshield wiper and light-switch controls on Olds 1949 models 76, 88 and 98, and the windshield wiper on Olds 1948 model 66. 1 $\frac{1}{2}$ " long, $\frac{3}{16}$ " O.D., .442" I.D., $\frac{1}{4}$ " square drive. Similar in design to S-9466 item [G] above.

S-7505 Studebaker Dash control Socket. A 6-pronged socket required for switch on control panel for air conditioning unit and fog light. 1" long, $\frac{1}{4}$ " square drive.

S-9465A Chrysler Fluid Drive Wrench. Special $\frac{3}{4}$ " combination open end and boxsocket wrench for removing the drive flange stud nuts holding the fluid drive assembly to crank shaft flange.

MISCELLANEOUS TOOLS FOR SPECIAL JOBS



A **GA-22 Standard Grease Fitting Tool.** Used to remove old fittings, rethread the holes and replace new fittings . . . fits standard size Zerk and Alemite grease fittings.

B **GA-22A Midcot Grease Fitting Tool.** Services so called "Midcot" grease fittings.

C **GA-46 Gasket Clips.** Set of twelve spring steel clips. Hold gasket firmly in place while assembly is being made. Protects the gasket—cuts time 50 per cent. Quickly removed when bolts are positioned.

D **S-5A Scratch Awl.** This is a high quality, alloy tool steel blade, machined and ground from $\frac{1}{8}$ " diameter to a perfect taper, and hardened the full length. Handle is the same high grade Octo-Grip plastic handle used on our best screwdrivers. Metal ferrule on the blade prevents pressure from pushing blade through the handle. Useful for scribing, upholstery, fire work, light lining up work, making starting holes in wood or light metals and many other jobs.

E **CHC-8 Hose Clamp Pliers.** For installing or removing any size Corbin hose clamp from $\frac{3}{16}$ " to 2 $\frac{1}{2}$ " outside diameter. Specially machined jaws work either parallel or at right angles to the work. Length 7 $\frac{1}{2}$ ".

F **GA-72 "C" Washer Pliers.** Make quick work of a tough job. Remove a stuck "C" washer, replace it on the anchor post, or crimp lock it in place—all with this one tool. No tool adjustments . . . one hand operation . . . works on all Lockheed hydraulic brake systems.

G **GA-62 Water Pump Locator.** You can easily install the water pump to block without waiting until the gasket is firmly in place. $\frac{3}{16}$ "-16 thread dowel ends are screwed into the block by means of the center shaft which has left hand threads and unscrews itself when the dowels are bolted in the hole holes. The gasket and pump are positioned over the dowels and bolted in position. The dowels are then removed with the center shaft.

GA-62-1 Shoff only.

GA-62-2 Dowel End only.

H **S-9156 Hudson Comber-Caster Wrench.** 1 $\frac{1}{2}$ " crowfoot wrench for Hudson camber and caster adjusting. Can also be used on some Chrysler line cars. $\frac{1}{2}$ " square drive.

I **Tie Rod Separators.** Sturdy split-wedge tools designed for separating tie rods, ball joints, pinion arms and knuckles on all cars.

A-200 Separator. 1 $\frac{1}{2}$ " jaw opening, 2 $\frac{1}{4}$ " thickness, 18" long.

A-201 Separator. 1" jaw opening, 3" thickness, 12" long.

A-202 Separator. 1 $\frac{1}{2}$ " jaw opening, 3 $\frac{1}{4}$ " thickness, 12" long.

J **GA-44 Flywheel Turner.** Saves crawling out from under to turn the motor by hand or starter . . . helps you place the crank shaft to the exact desired position to the fraction of a turn. Spring tension holds the tool fast to the flywheel leaving both hands free for work. A real time saver on clutch work, bearing work, ring installations and other general jobs on any make of car, truck, bus or tractor.

K **Engine SAF-T-LIF.** Bolts to the cylinder studs in any engine and provides angle adjustment for raising and lowering engines in close quarters. Extra safe—it is tested for a 2 ton lift . . . and with the Hook Adaptor lifts lifts with hooks larger or smaller than standard, without the adaptor it fits 1 ton and 1 $\frac{1}{2}$ ton standard hooks only. The Saf-T-Saddle permits cable to be moved to the best lifting position but will not slip out of position under load. The flexible, preformed, steel aircraft cable has attached fittings drilled to fit $\frac{1}{2}$ " diameter studs.

Two sizes of Saf-T-Lifs are available. The GA-76A standard model is 30 inches long and comes complete with a universal hook adaptor. The GA-77A has a 36" cable for Ford V-8 engines and includes the hook adaptor.

GA-76A Saf-T-Lif with Adaptor

GA-76 Saf-T-Lif without Adaptor

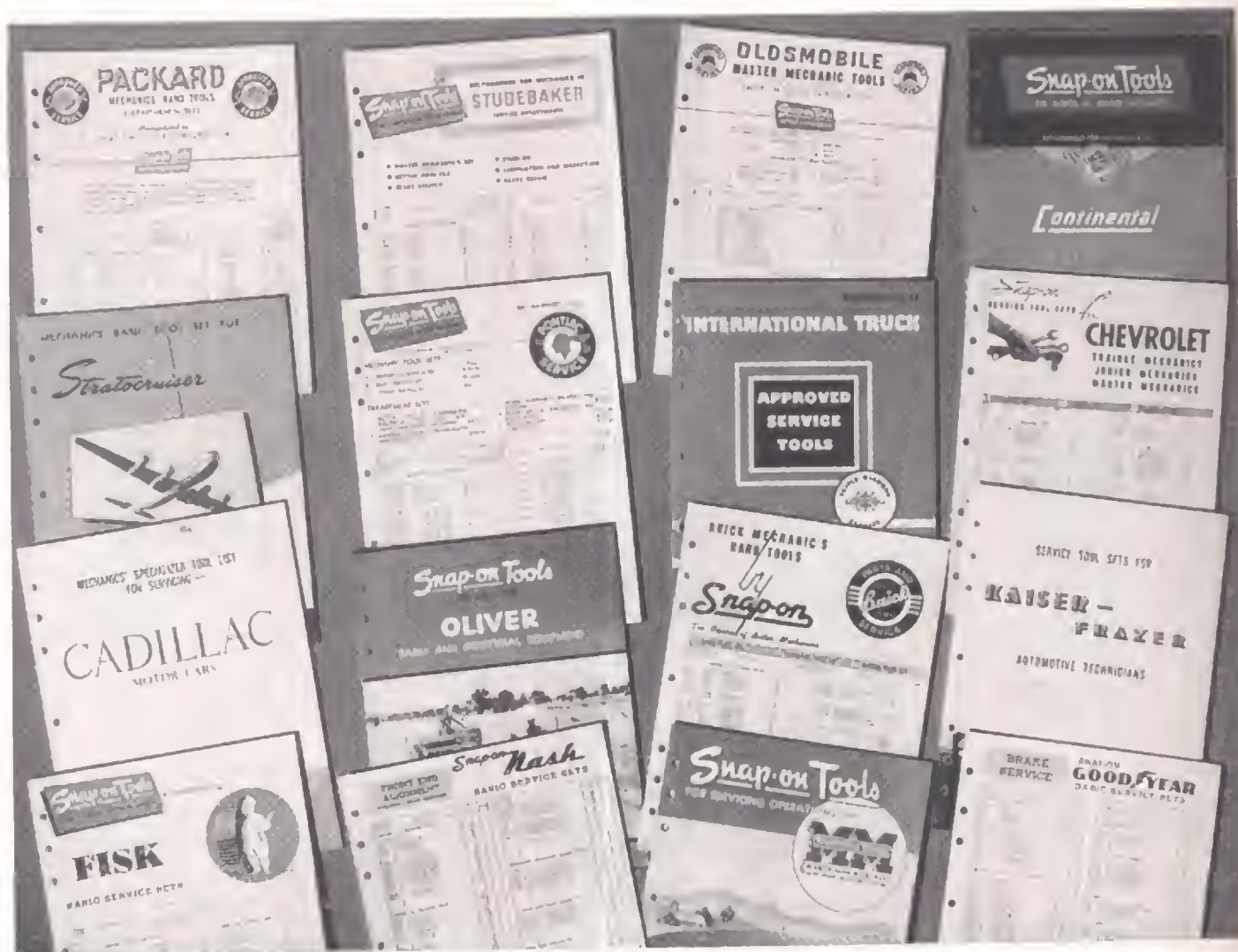
GA-77A . . . Long Saf-T-Lif with Hook Adaptor

GA-77 . . . Long Saf-T-Lif without Hook Adaptor

GA-76A-1 . . . Hook Adaptor

Approved Snap-on Tool Sets

FOR SERVICING EFFICIENTLY AMERICA'S LEADING
AUTOMOBILES, TRUCKS, TRACTORS, FARM IMPLEMENTS,
AEROPLANES . . . INDUSTRIAL AND OFFICE EQUIPMENT



A NATIONAL SERVICE TOOL PROGRAM TAILORED TO FIT YOUR NEEDS

Manufacturers of any products which carry the obligation of service-after-the-sale know that, in any community, their success depends heavily on efficient local service. They do their utmost to help dealers provide it. Organized training programs cover the most advanced service procedures, but in the end, good service centers in the hands of capable mechanics equipped with the right tools for every service operation.

When it comes to the task of actually getting such tools into the hands of service mechanics from coast to coast, many successful manufacturers solve this problem effectively and completely by centering the responsibility in the hands of Snap-on's tool distributing organization.

Snap-on field men visit service establishments everywhere—call on the mechanics servicing the product—display and demonstrate those tools approved by the manufacturer—take the order and deliver the tools.

The three-fold service Snap-on renders benefits:

1. **The manufacturer**, by assisting in the selection of essential tools, preparation of the printed program and providing nation-wide contact with service mechanics.
2. **The dealer**, by helping his mechanics equip themselves with tools designed for more efficient service—the kind of service that makes satisfied customers.
3. **The mechanic**, by rendering him a regular, periodic tool service that brings the tools he needs right to his work bench and helps him acquire them, in groups or single units, until his equipment is complete.

Illustrated above are a few of the Service Tool Programs we have prepared in cooperation with leading manufacturers. Our engineers work directly with the Service Department of such companies to determine the best possible selection of mechanics tools for efficient servicing of their product. Manufacturers interested in better product servicing are invited to write for the complete Snap-on story.

WRENCH OPENINGS

For American Standard, U.S.S. and S.A.E. Bolts and Nuts

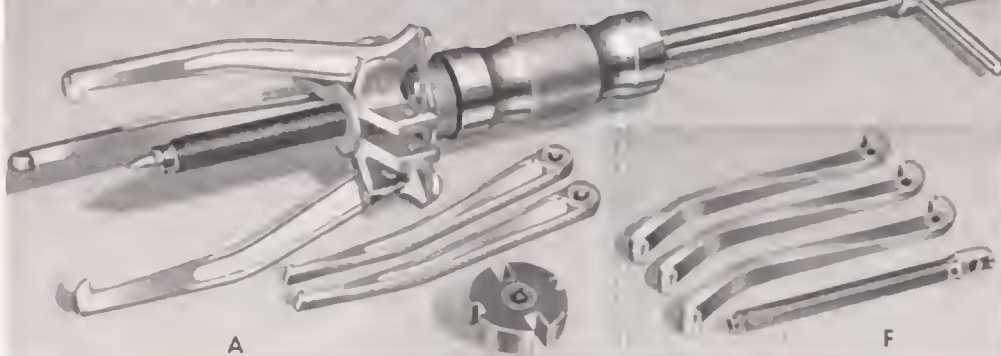
Nominal Size of Wrench Also Width Across Flats of Bolt Heads and Nuts	AMERICAN STANDARD							U.S.S.		S.A.E.
	REGULAR SERIES		HEAVY SERIES	LIGHT SERIES		Machine Screw Nuts and Stave Bolt Nuts	National Coarse Nuts and Bolts	Cap Screws	National Fine Screws, Bolts and Nuts	
	Bolts, Unfinished, Semi-Finished and Finished	Nuts, Jam Nuts, Slotted Nuts, Unfinished, Semi-Finished and Finished	Bolts, Nuts, Jam Nuts, Slotted Nuts, Unfinished, Semi-Finished and Finished	Nuts, Jam Nuts, Coarse Nuts, and Slotted Screws	Cap Screws					Set Screws
5/32						0, 1				
3/16						2, 3				
1/8										
1/4										
5/16										
3/8						1/4"	4			
7/16										
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6										

Note: If you do not know the bolt or nut specification, order wrenches of the same size as the width across the flat of bolt head or nut.

Universal Puller Tool

Pat. No. 1,893,414

WITH BOOSTER HAMMER PRINCIPLE



For small internal pulling jobs, the small jaws are used on the 2-way yoke arms. The spreader disc slips over the end of the shaft and expands the jaws to grip the job. Disc slots hold jaws steady.

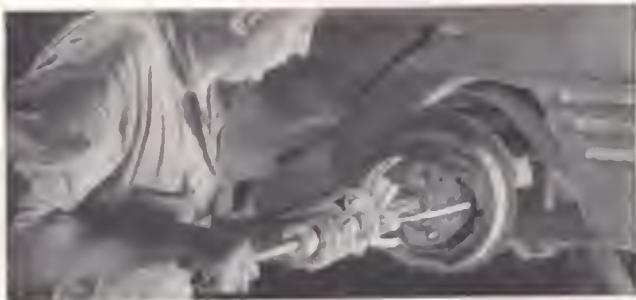
COMBINATION 2 AND 3-WAY YOKE—SLIDE HAMMER AND PRESSURE SCREW OPERATION

Long a favorite tool for general pulling operations in garages, tractor shops, aircraft shops, etc., the Universal Puller now offers increased value and adaptability to automotive repair shops through the addition of the special pulling heads shown on the opposite page. Add these heads to your Universal Puller . . . select one or more heads and the slide hammer unit . . . or get the complete Universal Puller set shown on opposite page. With the different pulling combinations this tool provides, you can handle a wide variety of jobs easily, quickly and safely. The booster hammer principle has definite advantages which ordinary pullers do not possess and services many jobs that screw pullers cannot handle.

A CJ-66A Basic Universal Puller. Provides the basic tool to which you can add units as needed.

A F CJ-68 Standard Universal Set. All parts shown above. Gives you a combined slide hammer and screw type tool.

- **Booster Hammer** gives a sudden, powerful blow, guided by the shaft in the direction of the pull.
- **Guided Blow** combined with center tension is the most effective pulling force.
- **Pulling Force** is distributed equally on all sides of the pull, prevents binding of the unit being pulled.
- **Short Screw** services jobs in close places where the slide hammer cannot be used. Screw hex head fits a $\frac{1}{2}$ " wrench. 2 and 3-way Yoke adapts the tool to any type of work. The 2-way throw is used for internal pulling jobs, or where a 3-way grip cannot be used. Where possible, use the 3-way throw to better distribute the pulling force.
- **Locking Feature** contributes to ease of handling the puller. A collar locking nut and spring hold the jaws open or lock them on the job. Once locked on they cannot slip off and cause trouble.
- **Spreader Disc** has two sets of guide channels to provide a wide range of expansion while holding the jaws in line.
- **Yoke Pins** are fitted with friction balls for easy interchange of units.
- **Jaw Capacity.** Small jaws insert through $\frac{1}{2}$ " opening for internal pulling. Capacity of medium jaws $6\frac{1}{4}$ ", of large jaws 10".



Removing a flanged axle shaft with the Universal Puller. Pinion Shafts, Generator and Starter Bearings and Gears, Fan Hubs and Pulleys, Timing Gears, Grease Retainers and Spring Hangers, many Bushings, Bearings, Universal Joint Flanges, etc., are easily pulled with this tool.

PARTS INCLUDED IN UNIVERSAL PULLER SETS

Stock No.	Description	Basic Set CJ-66A	Standard Set CJ-68
66-1	Screw Slide Shaft	1	1
66-2	Booster Hammer	1	1
66-3	Combination Yoke	1	1
66-A5	Medium Jaws	3	3
66-A6	Small Jaws	2	2
66-7-1	Locking Collar	1	1
66-7-2	Locking Collar Nut	1	1
66-8A	Spreader Disc	1	1
66-9	Yoke Pins	1	1
66-16	Centering Adaptor	1	1
66-11	Spring Retainer	1	1
66-12	Short Puller Screw	1	1
66-13	Large Heavy Jaws	3	3
10-F	Bar Handle	1	1
66-6A-1	Set Screw	1	1

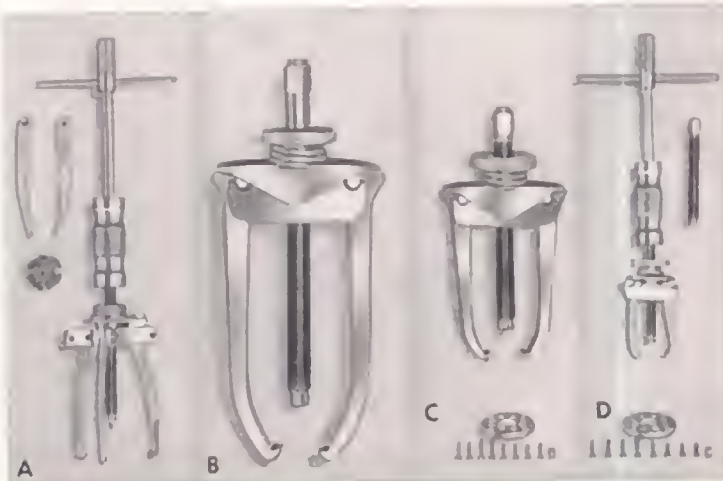
GENERAL PULLER SET

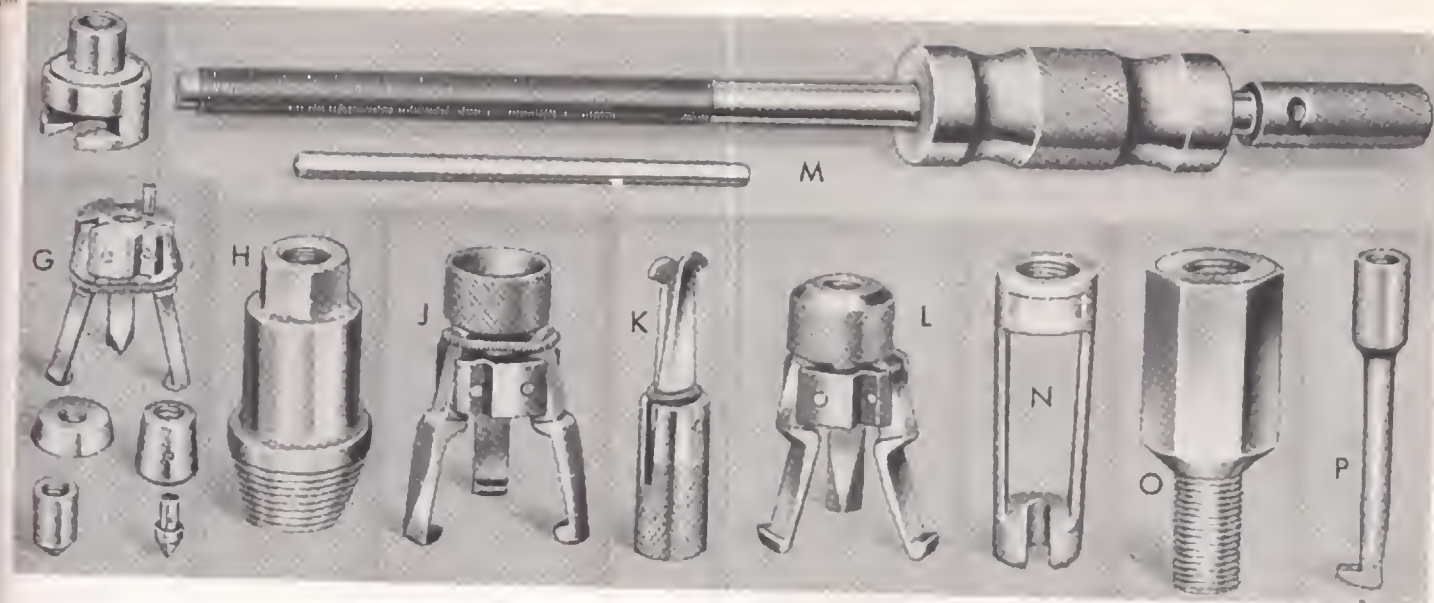
CJ-673 General Puller Set. Here in one selection of "matched unit" pulling tools, is the answer to practically all pulling problems within a 14" maximum jaw spread requirement. The set includes:

- A** CJ-66A Universal Puller described above.
- B** CG-300 Large Standard Gear Puller (page 93).
- C** CG-270A Medium Standard Gear Puller (page 92).
- D** CG-250C Small Combination Gear Puller (page 92).

The Slide Shaft of the CJ-66A and Pressure Screw of the CG-270A are the same thread size and can be interchanged on these two pullers making each a combination type tool without expensive duplication of parts.

Garages, truck and bus fleet shops, farm implement shops, aircraft maintenance shops, small diesel and stationary engine repair departments, and many light industrial maintenance departments will find this set a profitable investment.





SPECIAL PULLER HEADS FOR THE UNIVERSAL PULLER TOOL

CJ-66-15 Bearing Race Remover Head. Solidly and compactly built for removing tight bearing races. Has a gripping range of $1\frac{1}{4}$ " to 3". Three fingers have flanges that grip behind the race even when it is flush with the housing. Four expansion plugs are included with this head.

CJ-69 Bearing Race Remover Tool. Consists of above tool plus the slide hammer, shaft and cross bar.

CJ-66-17 Valve Puller Head. Here is the easy way to pull stuck valves. Screw the unit onto the slide screw shaft, place it around the valve head and a few hammer blows bring out the valve. This unit will not pull Ford valve assemblies.

CJ-66-20 Axle Puller Head. Takes all sizes—is quick and easy to use. Knurled adjusting nut contracts the three jaws to grip behind the axle nut.

CJ-66-18 Brake Cable Puller Head. Frozen brake cables are no problem if you have one of these tools in your shop. Brake cable fits in the slot of the head and saves time and effort over the usual pounding methods. Takes cable up to $\frac{1}{4}$ " in diameter.

These special head assemblies all fit the shaft of the Universal Puller described on opposite page and all except **G** and **K** fit the CG-270-8 shaft shown on page 92.

CJ-66-16 Chrysler Grease Retainer Puller Head. On Chrysler cars you cannot remove grease retainers with expanding jaw type tools and this special head is required. The tapered thread is inserted into the seal and the head turned under pressure until it has threaded itself into the seal. Slide hammer blow then removes the retainer seal.

CJ-66-25 Grease Retainer Puller Head. A remarkably efficient tool . . . the thin, tapered jaws are pressed together, inserted through the grease retainer and expanded behind it. The small expansion plug shown with group **L** is included with this tool. It is inserted into the end of the slide shaft of the Universal Puller to expand the jaws.

CJ-66-30 Chevrolet Bearing Race Remover Head. Use with slide hammer and shaft to pull grease retainer and axle bearing in one operation on Chevy cars and trucks. Fingers are long enough to pull many other grease retainers and bearings which standard pullers won't handle.

CJ-70 Chevrolet Bearing Race Remover Tool. Above tool plus the Universal Puller slide hammer, shaft and cross bar.

CJ-66-21 Chevy Truck Axle Puller Head. The threaded end of the head turns into the splined axle shaft of Chevy trucks for fast, easy pulling of the unit with the aid of the guided shock blows of the slide hammer. Fits $1\frac{1}{2}$ and 2 ton models 1947 and up.

CJ-66-19 Bearing Hook Head. Pulls pilot bearings too large for the A-78 Pilot Bearing Puller as well as grease retainers, bearing races etc. on cars and trucks. The overall length is $5\frac{1}{4}$ ", the width of the hook is $\frac{3}{4}$ ".

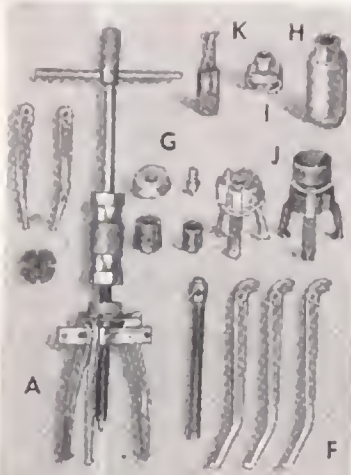
CJ-71 Bearing Race and Accessory Set. A set of units for servicing most axles, axle bearings, grease retainers and stuck valves (except Ford valve assemblies).

Special Puller Heads Parts List

Stock No.	Description	G CJ-66-15	I CJ-66-17	J CJ-66-20	M CJ-66-25	L CJ-66-30
66-15-1	Body . . .	1				
66-15-2	Jaws . . .	3				
66-15-3	Expansion Plug—Small . . .	1				
66-15-4	Expansion Plug—Medium . . .	1				
66-15-5	Expansion Plug—Large . . .	1				
66-15-6	Expansion Plug—Extra Large . . .	1				
66-15-7	Spring . . .	1				
66-15-8	Jaw Pins . . .	3				
66-15-9	Key for Plugs . . .	1				
66-17-1	Adapter . . .		1			
66-17-2	Housing . . .		1			
66-17A-1	Driver Pin . . .		1			
S-9958-9	Body . . .			1		1
66-20-1	Jaws . . .			3		3
66-20-2	Adjusting Nut . . .			1		1
66-25-1	Body . . .				1	1
66-25-2	Jaws . . .				2	2
66-25-3	Pin . . .				1	1
66-25-4	Spring . . .				1	1

UTILITY PULLER SET

CJ-670 Utility Puller Set. The man who wants a small yet extremely versatile puller set will find that this selection of units will handle an amazing number and variety of jobs. The set includes **A** the CJ-66A Basic Universal Puller described on opposite page and **B** the CG-270A Medium Standard Gear Puller described on page 92. The screws on these pullers are interchangeable thus giving you the advantage of slide hammer and pressure screw operation on both pullers. Special pulling heads listed above can be added as you need them.



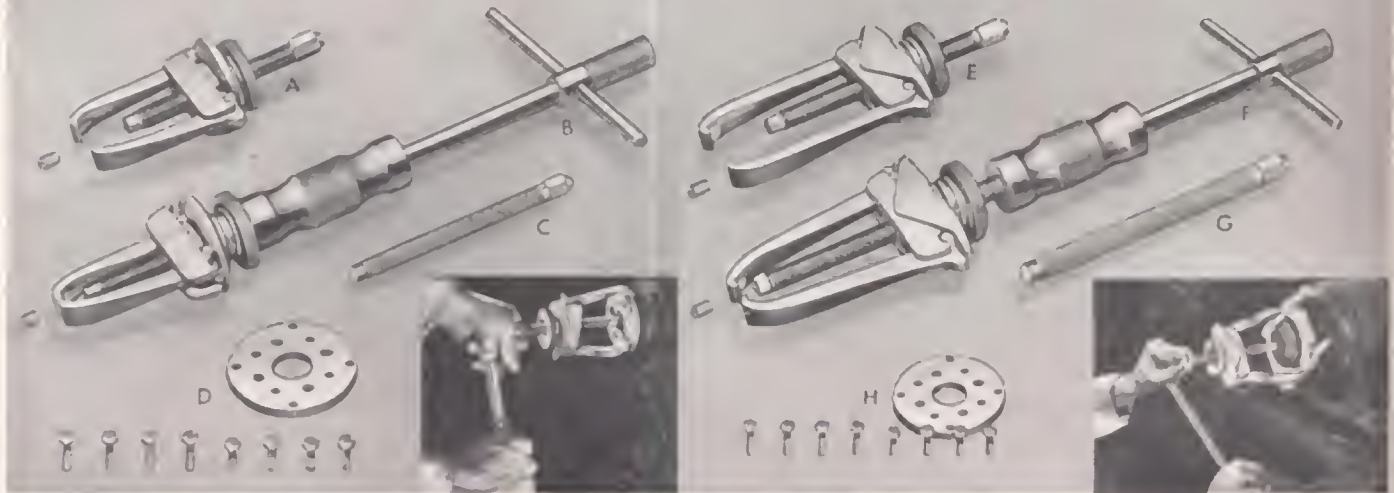
COMPLETE UNIVERSAL PULLER SET

CJ-72 Complete Universal Puller Set. Here is a set of pullers especially suited for automotive service . . . handles the great majority of everyday garage pulling jobs. The basic tool in this set is **A** **E** CJ-68 Standard Universal Puller described on opposite page. Special puller heads **G** **H** **I** **J** **K** described above are included to give this set all round adaptability.

With a set like this you are ready to do a fast, easy and safe pulling operation and get repairs completed in profit making time. The special Chevrolet bearing race remover is not included as the jaws in the axle puller head can be reversed in order to service Chevrolet cars.

Snap-on GEAR PULLERS

Give more locking power than



Give you SAFE, UNIFORM POWER over the entire pulling range

JAWS LOCK ONTO THE JOB—NO SLIPPING OR TIPPING

Snap-on Gear Pullers are now offered in three popular sizes, with the two smaller models available in either standard or slide hammer type or as a combination of both. The Medium Puller is also available as either a two or three jaw model. The large 14" capacity puller is made in the standard pressure screw type only. The yoke and jaw construction is the same on both Standard and Slide Hammer models—built on a principle that locks the jaws onto the job with a bulldog grip—pulls small gears as easily as big ones—produces safe, uniform power over the entire pulling range. A principle that gives you slipless, tipless pulling. Yokes are equipped with 2 slots for each jaw to provide better gripping power on smaller jobs. Jaws are reversible

for either "inside" or "outside" holds and jaw tips are sturdily built and especially heat treated to provide ample strength for any job within the size capacity of the tool. In addition to a wide range of gear sizes, these tools also pull pitman arms, tie-rod ends, universal joint splines, etc. A circular plate attachment (included in some of the small and medium puller sets) adapts the pullers to handle water pump and generator pulleys, tapped gears, etc. The centralized, guided shock of the booster hammer, combined with the screw tension, provides a pulling force unequalled by any other method . . . distributing the pull equally on all sides, it eliminates binding of the part on the shaft and does the job quickly and safely.

SMALL 2-JAW PULLERS—4½" JAW CAPACITY

Jaws have a 4½" maximum spread on outside holds and operate through 1½" openings for inside holds. Power capacity 7½ tons. Five different models are available. Pressure screw can be turned with any standard ¾" wrench and has a pointed tip to center on turned shafts. All parts are made of finest steel and jaws are drop-forged for extra strength. Will pull pitman arms, tie rod ends, etc. and when used with the circular plate attachment will pull various tapped pulleys. Illustration above shows it removing a water pump pulley. A pressure screw point protector is included with each set while the circular plate attachment is included with three models only. See parts list below.

- (A) CG-250 Small Basic Gear Puller
- (A D) CG-250A Small Standard Gear Puller
- (B) CG-250H Small Basic Slide Hammer Gear Puller
- (B D) CG-250HA Small Standard Slide Hammer Gear Puller
- (B C D) CG-250C Small Combination Gear Puller

MEDIUM 2-JAW PULLERS—8½" JAW CAPACITY

Jaws have a 8½" maximum spread on outside holds and fit through 2½" diameter opening for inside holds. Power capacity 10 tons. Five different models are available as listed below. ¾" hex head on pressure screw. Its capacity covers a wide range of gears and pulleys, pitman arms, etc. The illustration above shows it being used in conjunction with a bearing separator to pull a V-belt pulley from an electric motor. The circular plate attachment is included with three models while the screw point protector is included with all sets to protect the screw tip when used on shafts without a center hole. Drop forged jaws provide maximum strength. Content of sets is shown at bottom of page.

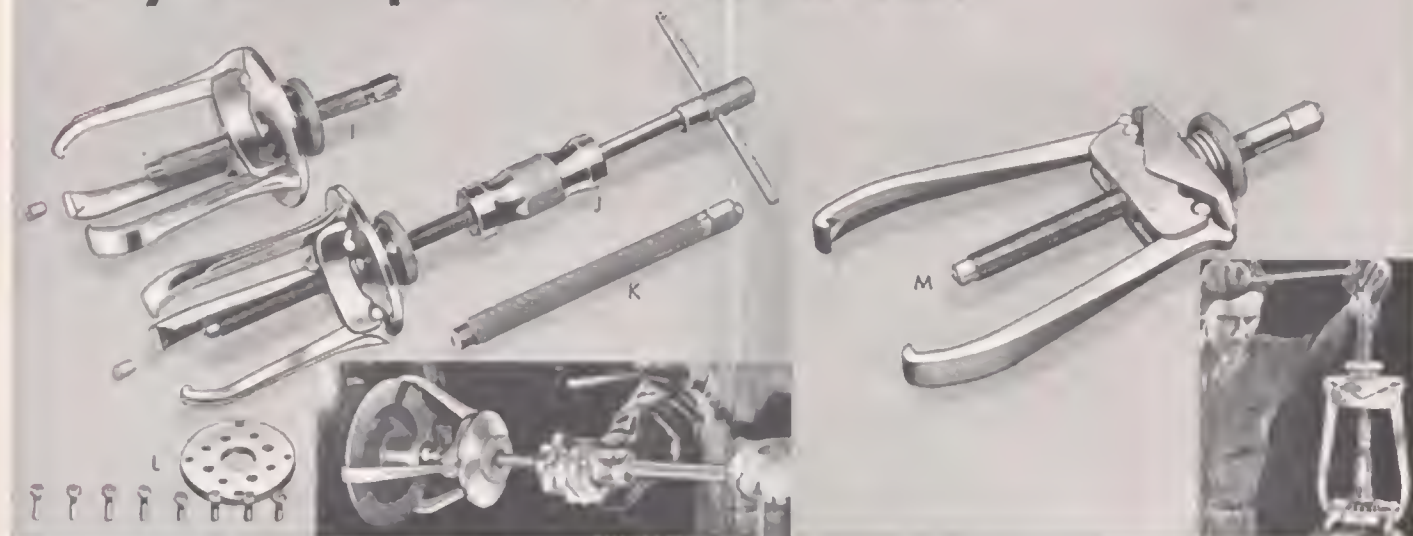
- (E) CG-270 2-Jaw Medium Basic Gear Puller
- (E H) CG-270A 2-Jaw Medium Standard Gear Puller
- (F) CG-270H 2-Jaw Medium Basic Slide Hammer Gear Puller
- (F H) CG-270HA 2-Jaw Medium Standard Slide Hammer Gear Puller
- (F G H) CG-270C 2-Jaw Medium Combination Gear Puller

Parts List of units comprising Small and Medium Puller Sets

DESCRIPTION	Stock No.	CG-250	CG-250A	CG-250H	CG-250HA	CG-250C	Stock No.	CG-270	CG-270A	CG-270H	CG-270HA	CG-270C	Stock No.	CG-270	CG-270A	CG-270H	CG-270HA	CG-270C
Hexhead Screw	CG-250-1	1	1			1	CG-270-1	1	1			1	CG-270-1	1	1			1
Yoke (2 Jaw)	CG-250-2	1	1	1	1	1	CG-270-2	1	1	1	1	1	CG-270-2	1	1	1	1	1
Yoke (3 Jaw)																		
Jaw	CG-250-3	2	2	2	2	2	CG-270-3	2	2	2	2	2	CG-270-3	3	3	3	3	3
Locking Plate (2 Jaw)	CG-250-5	1	1	1	1	1	CG-270-5	1	1	1	1	1	CG-270-5	1	1	1	1	1
Locking Plate (3 Jaw)																		
Spring	CG-250-6	1	1	1	1	1	CG-270-6	1	1	1	1	1	CG-270-6	1	1	1	1	1
Adjusting Nut	CG-250-7	1	1	1	1	1	CG-270-7	1	1	1	1	1	CG-270-7	1	1	1	1	1
Slide Screw Bar	CG-250-8	1	1	1	1	1	CG-270-8	1	1	1	1	1	CG-270-8	1	1	1	1	1
Booster Hammer	CG-250-9	1	1	1	1	1	CG-270-9	1	1	1	1	1	CG-270-9	1	1	1	1	1
Circular Plate Attach. with four each ¼"-20 and ½"-28 Bolts	★ CG-1	1	1	1	1	1	★ CG-1	1	1	1	1	1	★ CG-1	1	1	1	1	1
¾" diameter Screw Point Protector	★ CG-5	1	1	1	1	1	★ CG-5	1	1	1	1	1	★ CG-5	1	1	1	1	1
Cross Bar	10-F						10-F						10-F					

MAKE THE JOB EASIER!

any other pullers of their size



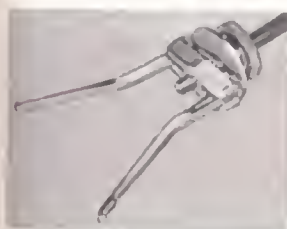
MEDIUM 3-JAW PULLERS — 8½" JAW CAPACITY

These pullers have a maximum jaw capacity of 8½" on outside holds and will operate through a 2¼" opening for inside pulls. They have a 10 ton power capacity. With the exception of the 3-way yoke and locking plate all parts are identical to the CG-270 sets shown on page 92. If you already own one of the CG-270 sets you can adapt it to 3-jaw use by adding only the 3-way yoke, 3-way locking plate and one extra jaw as all the other parts are interchangeable. Yoke has two sets of slots to enable the jaws to be set closer to the screw for better gripping power on smaller jobs.

I	CG-273	3-Jaw Medium Basic Puller
IL	CG-273A	3-Jaw Medium Standard Puller
JL	CG-273M	3-Jaw Medium Basic Slide Hammer Puller
JLL	CG-273HA	3-Jaw Medium Standard Slide Hammer Puller
JLL	CG-273C	3-Jaw Medium Combination Puller

LONG JAWS FOR INSIDE PULLING JOBS

Interchangeable With Standard Jaws on CG-250, CG-270 and CG-273 Series Pullers

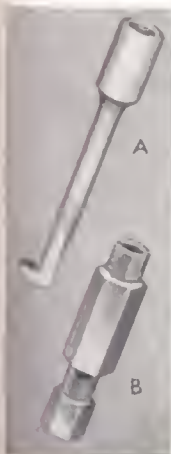


★CG-250-10 Long Jaw. Increase the usefulness of your small and medium puller sets. Designed for inside pulling of bearings, bushings, etc., they "lock-on" for inside holds up to 8" in diameter and will reach into a ¼" opening to a depth of 3" before binding. Can also be used for light work on outside holds. Overall length 7½".

BEARING PULLER TOOL

A CG-250-18 Bearing Puller Tool. Threads onto the end of the CG-250-8 Slide Screw Shaft. Shock blows remove pilot bearings too large for the A-78 Puller (shown on page 94), as well as bearing races, grease retainers, etc. 5½" long, ¾" wide hook.

M-4378 Magneto Impulse Starter Puller. Used on International Tractors. Unit fits over the shaft and threads into the impulse starter. Pressure screw contacts the shaft for pulling operations. 9/16" x 24 threads on end, ¾" hex on body and 5/8" hex on pressure screw.



LARGE PULLER — 14" JAW CAPACITY

14" maximum jaw spread on outside hold. On inside pulls; jaws operate through openings 3¼" in diameter. Its 20 ton power capacity makes this the puller for those big, tough jobs. Jaws are forged from special alloy steel then heat treated and hardened for the strength to stand up under severe punishment. This model comes in the screw type only. Illustration shows its application on a differential bearing with a bearing separator (see page 94). Once set, you merely apply pressure to screw and stubborn gears and pulleys are

Large Size Puller Set

Stock No.	DESCRIPTION	CG-300 Standard Puller
CG-300-1	Hexhead Screw	1
CG-100-2	Yoke	1
CG-100-1	Jaw 2 needed	2
CG-100-5	Locking Plate	1
CG-300-6	Spring	1
CG-300-7	Adjusting Nut	1

loosened without danger to any of the parts. Pressure screw has 1" hexagon head for convenient operation with a standard wrench. Parts making up this puller listed at left.

CG-300 Large Standard Gear Puller

COMPLETE STANDARD GEAR PULLER SET

CG-573A Set. This matched set of Snap-on pullers will provide the right size tool for most of the pulling jobs you'll run up against. Consists of the CG-250A Small Standard Puller Set which includes the circular plate attachment, the CG-270 Medium Basic Puller and the CG-300 Large Standard Puller. These three screw-type pullers provide a pulling capacity up to 14" in diameter for outside holds.

INLOX BUSHING REMOVERS

Use with the CG-270 Gear Puller. Adaptor is placed at end of bushing so it will ride through the shackle . . . puller screw is centered on the adaptor and the jaws placed around opposite side of shackle. Pressure applied to the screw will quickly remove the bushing.



CG-275 Set of 5 Removers.	CG-275-3 1¼" Bushing Remover
CG-275-1 1¼" Bushing Remover	CG-275-4 1½" Bushing Remover
CG-275-2 1½" Bushing Remover	CG-275-5 1¾" Bushing Remover

GEAR PULLER SCREW POINT PROTECTORS

These Screw Point Protectors fit over the tapered point of the puller pressure screw and prevent it from being damaged when puller is used on a shaft without a center hole. Three sizes for different diameter pressure screws are available.

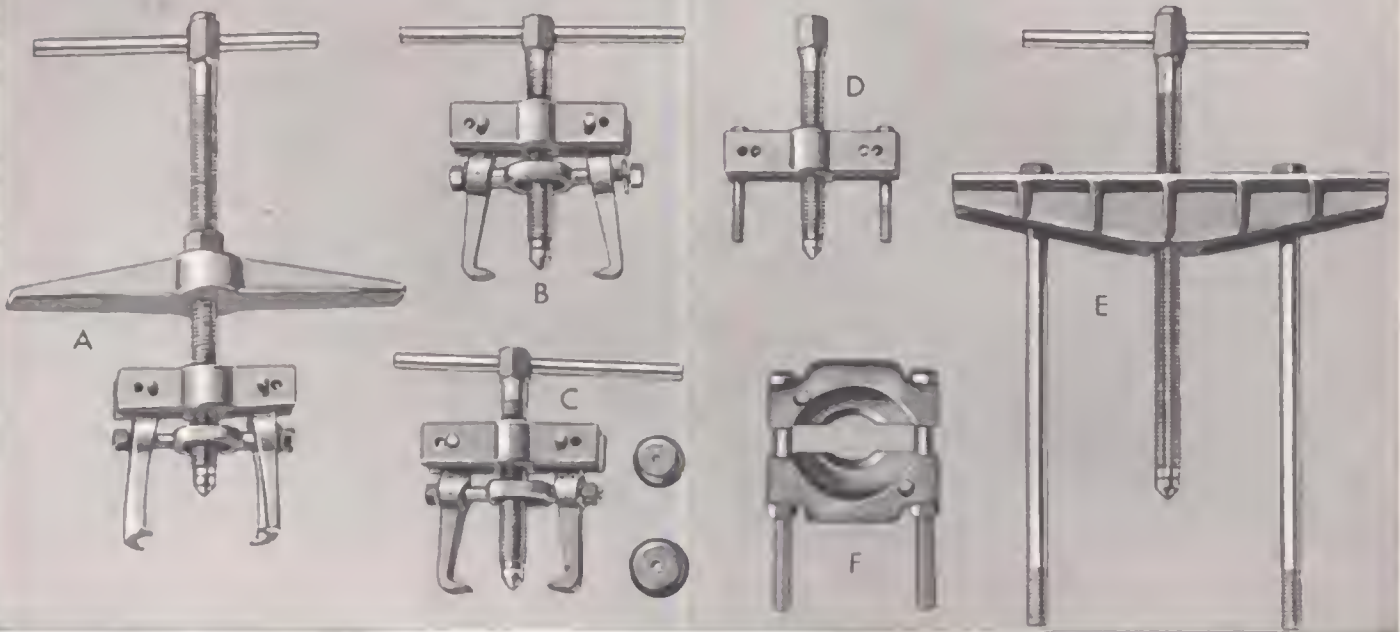


CG-10 Set of 3 Screw Point Protectors

CG-6	9/16" Screw Point Protector
CG-7	¾" Screw Point Protector
CG-8	1½" Screw Point Protector

Snap-on INTERCHANGEABLE PULLER SETS

BUY ONE PULLER—ADD PARTS TO MAKE OTHER PULLERS



The pullers shown above are assembled from parts listed below—using one complete puller as a basic unit the addition of other parts will enable you to make one or more of the other pullers. All screws and yokes have the same thread size to provide interchange of long and short screws. Nineteen parts combine to make five different complete pullers.

PINION GEAR PULLER

A **CJ-86 Pinion Gear Puller.** Affords a fast, efficient way of removing the tightest pinion gear assembly. On all GM cars on which it is possible to remove the assembly through the differential housing, the CJ-86 will do the job without dropping the drive shaft, which means a big saving in time. The wide jaws cover 3 teeth on either side for greater gripping power without danger of damage to the gears. A ball bearing takes up the thrust for easy operation. Yoke has 2 jaw positions to adjust to best gripping position for gear size. See parts listing at right.

SIDE BEARING PULLER

C **CJ-81B Side Bearing Puller.** This puller affords an easy way of removing carrier side bearings without injuring them. The narrow jaws slip into the housing grooves in back of the bearing and let the jaws seat and pull from the inner race. The jaws are locked on the bearing by means of the clamp bolt. Yoke has two sets of holes for positioning of jaws. Centering adaptor and two bearing adaptors fit wide range of cars. Parts listed at right.

PITMAN ARM PULLER

B **CJ-82A Pitman Arm Puller.** A fast action Pitman Arm Puller that can be used for a wide variety of other jobs. Clamp bolt locks the puller on the Pitman arm leaving both hands free for the actual pulling operation. Parts are interchangeable with other pullers illustrated above. See below for complete listing of parts.

TIMING GEAR PULLER

D **CJ-83A Timing Gear Puller.** The short screw on this puller—only 6 1/4" long—makes it ideal for close quarter work. One set of studs with a thread size of 3/4"—16 is furnished to handle the majority of tapped timing gears. This size also fits the CJ-950 Bearing Separator. Parts included in this puller are listed below.

SLOTTED YOKE PULLER

E **CJ-84 Slotted Yoke Puller.** Here is a larger model of the timing gear puller that will prove useful in any shop or industrial plant. Besides pulling tapped bearings, pulleys, gears, etc., the 1/2"—18 thread studs also fit the CJ-951 and GP-952 bearing separators for maximum pulling efficiency. The rugged yoke is slotted to within a short distance of the screw to give plenty of adjustment for various sized jobs. Screw is 12" long. See listing of parts at left.

List of Parts Comprising the Above Pullers

Part No.	Description	CJ-81B	CJ-82A	CJ-83A	CJ-84	CJ-86
CJ-86-1	Yoke.....	1	1	1		1
CJ-84-1	Yoke.....				1	
66-12	Long Screw				1	1
CJ-83-2	Short Screw	1	1	1		
A-86-8	Cross Bar	1	1	1	1	1
66-15-3	Centering Adaptor.	1	1	1	1	
CJ-81-8-1	Bearing Adaptor	1				
CJ-81-8-2	Bearing Adaptor	1				
★CJ-81-2	Jaw.....	2				
★CJ-86-2	Jaw.....		2			2
CJ-86-4	Clamp Bolt	1	1			1
66-9	Jaw Pin	2	2			2
A-86-8	Clamp Washer	2	2			2
A-86-9	Clamp Nut	2	2			2
CJ-83-1	Small Stud			2		
CJ-84-2	Large Stud				2	
A-86-3	Straddle Bar					1
A-86-6	Pressure Nut					1
A-81-7	Thrust Bearing					1

BEARING SEPARATORS

F Provide a means for quickly and easily separating and pulling double bearings, closely fit gears, etc. Use with standard 2 jaw or slotted yoke pullers.

CJ-950 Separator. 2 1/4" O.D. Cap. Use with CJ-83A above or CG-250A (page 92).

CJ-951 Separator. 4 1/4" O.D. Cap. Use with CJ-84 above or CG-270A Puller (page 92).

GP-952 Separator. 5 1/4" O.D. Cap. Use with CG-300 Puller (page 93) or CJ-84 above.

PILOT BEARING PULLER

A-78 Pilot Bearing Puller. For clutch pilot bushings as well as small bearings in motors, generators, magnetos, and similar equipment. Pulling capacity of the puller with both sets of jaws is 2 1/4" to 1 1/4". The larger jaws are designed to remove bronze or oilite bushings without crumbling them. Small jaws will pull bearings, including the small clutch pilot bearings found on Hudson built cars. Many other small pulling uses will be found for this tool.

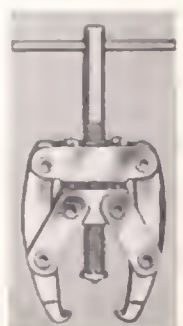
Complete Tool Contains These Parts

A-78-1 "U" Shape Body A-78-5 Pressure Screw
A-78-2 Jaw Holder A-78-6 Jaw Pin (2)
A-78-3 Large Jaw (2) A-78-7 Slide Bar
A-78-4 Small Jaw (2) A-78-9 Pressure Nut

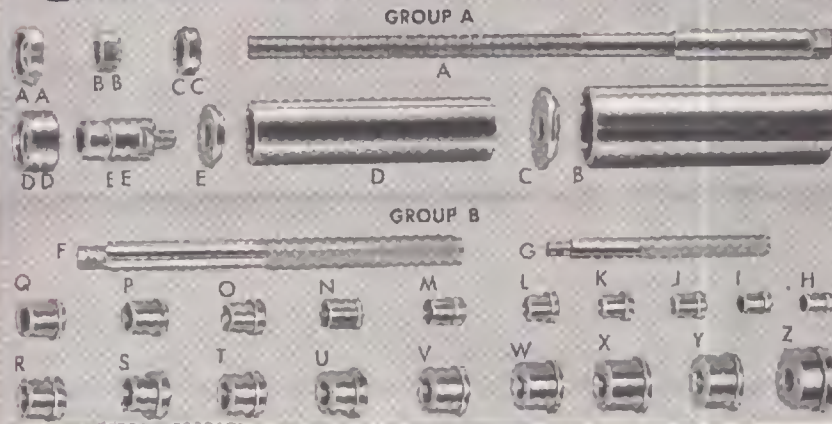
SMALL PULLER TOOL

CG-30 Small Bearing and Gear Puller. The construction permits you to swing the jaws open to place them on the job, and the spring action on the yoke closes and holds them in position while the screw is tightened. Leverage is transferred to the jaws through the threaded crown and four lever arms—the harder the pull—the tighter the grip.

The tool is sturdily built and is the finest puller you can use for those small pulling jobs, including battery terminal work. The jaws spread to 1 1/4" and accommodate gears up to 3/4" thick. The maximum distance from the pressure screw to the jaw tips with the jaws open is 1 1/4". Forged jaws and accurately machined parts guarantee smooth operation and plenty of pulling power.



Snap-on BUSHING INSERTER and REMOVER SETS



Long favorites in shops coast to coast, Snap-on bushing remover and inserter sets provide an easier way to remove the tightest bushings and install new ones without any chance of damage. Additional sizes of adaptors have been added and the pressure screw lengthened to make the tools even more useful than before. Bronze or steel bushings can be serviced with this outfit and the wide range of adaptor sizes covers practically all shackle and steering bushings. New bushings can be inserted quickly and safely with the inserter set as shown at the right—tightening the screw forces the bushing into place easily and quickly. The sleeves permit you to force out old bushings and are indispensable on jobs where there is not sufficient room to drive them out.

INSERTER AND REMOVER SET

(All Units in Group A and Group B)

A-57H-B Bushing Remover and Inserter Set. Complete with all parts listed below and shown in groups A and B in the illustration. The five small adaptors are used only with the small driver. The set comes with the special KR-120A metal box as shown above. Case has red enamel finish.

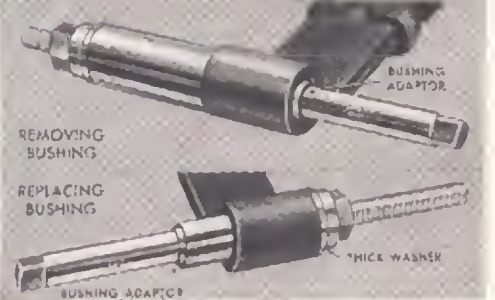
A-57H Above set. Tools only.

DRIVER SET

(Units Shown in Group B Only)

A-57J-B Bushing Driver Set. Consists of the large and small driver and nineteen bushing adaptors shown in group B and listed below. The small driver is used with the five smallest adaptors. Provides a basic set to which you can add other units later. Complete in KR-120 Box.

A-57J Above Set. Tools only.



REMOVING BUSHING

REPLACING BUSHING

BUSHING ADAPTOR

The top illustration shows how the pressure screw, bushing adaptor, roller bearing and sleeve is set up to remove a bushing. The nut is turned with one wrench and the screw held with another thus drawing the bushing out of the shackle and into the sleeve. Bottom picture shows set up for inserting a new bushing . . . tightening the nut draws the bushing into the shackle. The thrust bearing prevents the nut from binding on or wearing the washer or sleeve end-piece.

List of Individual Parts Making up the Above Sets

			Bushings Adaptors—Fit Bushings having minimum diameters as listed					
Key Letter	Stock No.	Description	Key Letter	Stock No.	Bushing Diameters	Key Letter	Stock No.	Bushing Diameters
A	A-57-B-2	Screw	H	A-57-16	1 1/2" x 1 1/8"	S	A-57-10	61/64" x 39/64"
B	A-57-9A	Large Sleeve	I	A-57-17	1 1/8" x 1 1/2"	T	A-57-11	1 1/8" x 1 1/2"
C	A-57-9A-1	Large Sleeve End	J	A-57-18	1 1/8" x 1 1/2"	U	A-57-12A	59/64" x 63/64"
D	A-57-1A	Small Sleeve	K	A-57-26	1 1/8" x 1 1/2"	V	A-57-22	1 1/8" x 1 1/2"
E	A-57-1A-1	Small Sleeve End	L	A-57-25	1 1/8" x 1 1/2"	W	A-57-13	1 1/8" x 1 1/2"
F	A-57-14A	Large Driver	M	A-57-8	1 1/8" x 1 1/2"	X	A-57-20	1 1/8" x 1 1/2"
G	A-57-15	Small Driver	N	A-57-19	1 1/8" x 1 1/2"	Y	A-57-23A	1 1/8" x 1 1/2"
AA	A-57-3	Thick Washer	O	A-57-7	1 1/8" x 1 1/2"	Z	A-57-29	1 1/8" x 1 1/2"
BB	A-57-21	Nut	P	A-57-6	1 1/8" x 1 1/2"			
CC	S-9095-B-10	Bearing	Q	A-57-5	1 1/8" x 1 1/2"			
DD	A-57-28	Chevy Rubber Spring Bushing Shackle Adaptor	R	A-57-24	1 1/8" x 1 1/2"			
EE	A-57-27	Chevy Truck Spring Shackle Adaptor						
	KR-120A	Special Metal Box						

INDUSTRIAL PULLERS FOR HEAVY MAINTENANCE WORK

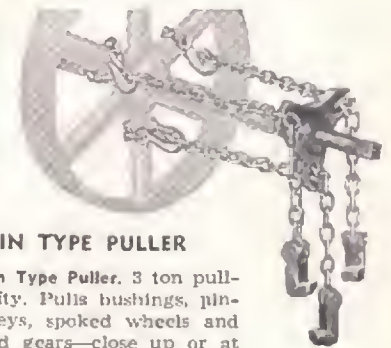
25 Tons of Pulling Power

CG-325 Extra Heavy Duty Puller. Handles gears and pulleys up to 20" diameter and has a reach of 20". Is adaptable as a three-jaw or two-jaw puller. Yokes and jaws are heat treated malleable iron, comparable in strength to heat treated alloy forgings. The 1 1/2" diameter screw has a hexagon head and can be turned with any standard 1 1/2" wrench.

Jaws hook into either of three positions on the arms and are semi-locked there by friction balls . . . once set properly, they grip tighter with each turn of the pressure screw, and cannot slip off. This rugged tool develops a gradual build-up of power to pull the toughest jobs without the smashing sledge blows and shocks which might damage machinery parts. Here is 25 tons of controlled pressure to pull those big, tough jobs surely and safely—more than ample power to handle any job within its jaw capacity.

CHAIN TYPE PULLER

GP-2 Chain Type Puller. 3 ton pulling capacity. Pulls bushings, pinions, pulleys, spoked wheels and small solid gears—close up or at a distance from end of shaft and over or through other pulleys. Equipped with 3 chains with 3/4" diameter links, each 3 feet long—proof-tested over 2,000 lbs. each. Equipped with both chain hooks and close-grip motor pulley hooks. Shipping wgt. 19 lbs.



UNIVERSAL STEERING WHEEL PULLER

Handles All Cars and Trucks

Here's How It Works!



Large frame assembly and narrow fork as used on certain models of Chevrolet cars. Pressure screw rests on the shaft inside the hub.



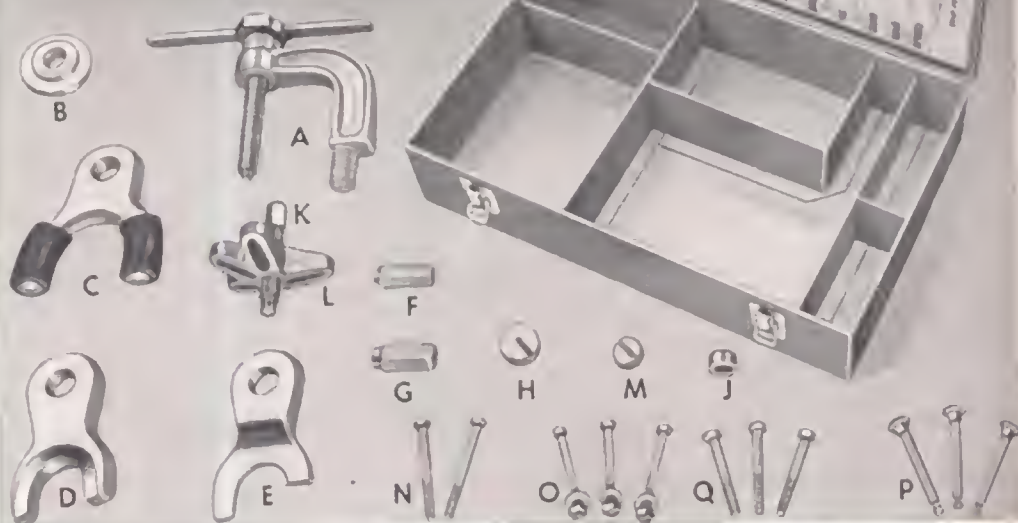
As used with frame assembly and wide fork on late model steering wheel. Slotted adaptor is used to protect horn wire.



The wide fork and frame assembly as used on late model Hudson. Slotted adaptor is used to protect the horn wire.



Yoke Assembly used to pull a late model steering wheel . . . horn wire is pulled out and the adaptor slot straddles the wire. See Yoke Set at right.



AN EASIER, FASTER AND BETTER WAY TO DO THIS JOB

This Steering Wheel Puller Set pulls all steering wheels safely and quickly, eliminates the need for special pullers. A puller that services older models only is of little value, but one set that services them all is something you can't afford to be without.

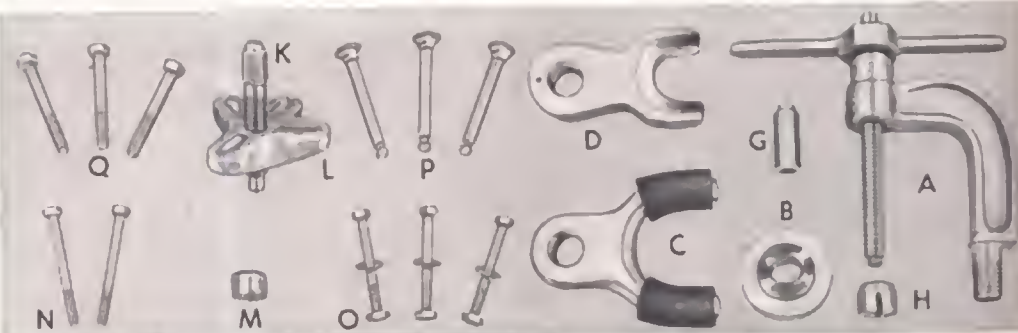
Interchangeable jaws and bushings quickly adapt it to any type of steering wheel hub and place smooth, powerful pressure at exactly the right place to assure a fast, safe job. The narrow fork has brass insert, wide fork has rubber sleeves to protect the steering column. The pressure screw does not turn . . . it is milled its entire length and works through a threaded bushing and key—thereby eliminating any possibility of damage to the shaft. Pressure screw and forks are in positive alignment, and the forged "I" beam standard does not permit give or spring.

The Yoke Assembly is for slotted and other late design hubs and is used with the studs.

CG-60F-B Universal Steering Wheel Puller Set. Containing all parts shown above and listed below, in KR-106 Metal Box.

CG-60F Set. Above set, tools only.

A	CG-60-H	Frame Assembly
B	CG-60-2	Frame Nut
C	CG-60-3	Wide Fork
D	CG-60-4	Narrow Fork
E	CG-60-4-A	Special Fork for 1939 Mercury
F	★CG-60-K-1	1940 Ford—Mercury Shock Puller
G	★CG-60-K-2	Chevrolet Shock Puller
H	CG-60-11A	Slotted Adaptor
I	CG-60-12-1 (Not shown)	Large Truck Adaptor
J	CG-60-R-1	Yoke Pressure Screw
K	CG-60-R-2	Four Arm Yoke
L	CG-60-R-3	Pressure Screw Adaptor
M	CG-60-R-4	Special Bulck Adaptor
N	★CG-60-7-4	Two 7/16" N.F. Studs
O	★CG-60-7-6	Three 7/16" N.C. Studs with Nuts and Washers
P	★CG-60-7-7	Three Bulck Studs
Q	★CG-60-7-8	Three 3/8" N.C. Studs
R	KR-106	Special Metal Box



YOKE ASSEMBLY PULLER SET

CG-60E-B Yoke Set. For slotted type and other late design hubs. Consists of the following parts illustrated above. In KR-106 Special Metal Box.

CG-60E Set. Above set, tools only.

A	CG-60-R-1	Yoke Pressure Screw
B	CG-60-R-2	Four Arm Yoke
C	CG-60-R-3	Pressure Screw Adaptor
D	★CG-60-7-4	7/16" N.F. Studs. (2 required)
E	★CG-60-7-6	7/16" N.C. Studs and Nuts (3 req.)
F	★CG-60-7-7	Bulck Studs. (3 required)
G	★CG-60-7-8	3/8" N.C. Studs. (3 required)

FORK ASSEMBLY PULLER SET

CG-60D-B Fork Set. For servicing standard type hubs. Consists of the following parts illustrated above. In KR-106 Special Metal Box.

CG-60D Set. Above set, tools only.

A	CG-60-H	Frame Assembly
B	CG-60-2	Frame Nut
C	CG-60-3	Wide Fork
D	CG-60-4	Narrow Fork
E	CG-60-11-A	Slotted Adaptor
F	★CG-60-K-2	Chevrolet Shock Puller

Adaptable to any car by changing Jaws—Easiest Puller to Use

★TN-201- $\frac{1}{2}$ " x 18. $\frac{3}{4}$ " long.
★TN-202- $\frac{3}{4}$ " x 18. 2" long.
★TN-241- $\frac{3}{4}$ " x 16. $\frac{3}{4}$ " long.
★TN-242- $\frac{3}{4}$ " x 20. 2" long.
★TN-243- $\frac{3}{4}$ " x 16. 2" long.
★TN-261- $\frac{1}{2}$ " x 16. $\frac{3}{4}$ " long.
★TN-281- $\frac{3}{4}$ " x 14. $\frac{3}{4}$ " long.
★TN-282- $\frac{3}{4}$ " x 18. $\frac{3}{4}$ " long.
★TN-283- $\frac{3}{4}$ " x 14. 2" long.
★TN-321-1" x 14. $\frac{3}{4}$ " long.
★TN-322-1" x 14. 2" long.
★TN-401-1 $\frac{1}{2}$ " x 12. $\frac{3}{4}$ " long.
★TN-402-1 $\frac{1}{2}$ " x 12. 2 $\frac{1}{4}$ " long.



Pictured above is the practical application of the Special Ford Wheel Puller Set. This set will service all Ford Passenger cars since 1928 as well as the Mercury and Lincoln Zephyrs. Ford Trucks require the set of three long jaws 4567-H illustrated (H) at top of page. By including these with the special Ford puller set VP-4567-B Set listed at right, you can service Ford passenger cars since 1928 and Ford trucks.



The relatively low cost of this equipment is no real measure of its full economy—it will do every job efficiently—without waste of time and without danger to any part of the car or to the operator. Compare the advantages of the Blue-Point Universal Wheel Puller with any other type.

IN	4567-H.....	Set of three long jaws.
V	4567-V	Ford passenger ear grooved hub set.
C	4567-C	Set of three $\frac{9}{16}$ " tapered stud nuts.
CC	4567-CC	Set of three $\frac{9}{16}$ " tapered stud nuts.
I	4567-1..	Set of three, right and left hand $\frac{3}{4}$ " stud nuts.
2	TN-1300 — Set of thirteen axle thrust nuts. KR-107 Special Metal Box	

Y-4567B Set: Same as above but minus TN-1300 Set of thrust nuts and Box.



S-4567B Set. Same as above but minus TN-1300 Set and Box.

Snap-on KING PIN and PERCH PIN PULLER SETS

Remove the tightest pins
quickly... easily... safely...

EXERT OVER 20 TONS OF PRESSURE



POWER TO PULL THE TOUGHEST JOBS—EASILY

The Snap-on King Pin Puller provides an easy way to remove the most stubborn King Pins and eliminates need for heating or for sledge hammer tactics. This tool does away with such time taking and dangerous methods . . . it works right on the job without pulling the axle and exerts a steady powerful pressure that pushes the pin out safely, easily and quickly. It has plenty of power and strength to handle the toughest jobs.

Ford perch hangers can be quickly removed with the four special parts included in the complete set. To remove King Pins, the front wheel is removed and the two yoke posts slipped over the axle and steering knuckle plate.

The heads swivel enough to adapt themselves to practically any car. Various pilots adapt the tool to the different sizes of King Pins used on Ford, Chevrolet, Plymouth and other cars. Snap-on's King Pin Puller has long been a popular tool and we believe it to be the most efficient tool yet developed for this work.

CG-220B-B Complete King Pin and Ford Perch Pin Set. Services most cars and light trucks. Complete in KR-105A special metal box. Box is 14" x 11" x 3"—red enamel finish.

CG-220B Set. Above set without the box.

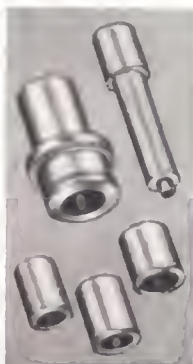
CG-212-B General Purpose King Pin Set. Services most cars and light trucks including Ford 1 ton and 1½ ton trucks with solid King Pins. Complete in KR-105A metal box.

CG-212 Set. Above set without the box.

LIST OF KING PIN AND PERCH PIN PULLER PARTS

Key Letter	Stock No.	Description	Set CG- 220B-B	Set CG- 212-B
(A)	CG-21-A	Pressure Screw.....	1	1
(B)	CG-21-B	Screw Yoke.....	1	1
(C)	CG-21-C	Ford Head.....	1	.....
(D)	CG-21-D	Screw Yoke Posts.....	2	2
(E)	CG-21-E	¾" Long Pilot.....	1	1
(F)	CG-21-F	¾" Short Pilot.....	1	1
(G)	CG-21-G	¾" Pilot.....	1	1
(H)	CG-21-H	Pilot Bearing.....	1	.....
(J)	CG-21-J	Post Nuts.....	2	2
(K)	CG-21-L-1	Perch Head.....	1	.....
(L)	CG-21-L-2	Perch Thrust Nut.....	1	.....
(M)	CG-21-L-3	Perch Pilot.....	1	.....
(N)	CG-21-L-4	Perch Adaptor Guide.....	1	.....
(O)	CG-21-P-4	General Use Head.....	1	1
(P)	CG-21-P-3	1¼" Bushing.....	1	1
(Q)	CG-21-P-2	1" Bushing.....	1	1
(R)	CG-21-Q	¾" Pilot Bearing for CG-21-R.....	1	.....
(S)	CG-21-R	1½" Pilot for Ford 1½ ton Trucks.....	1	.....
	KR-105A	Metal Case.....	1	1

TRUNNION PIN ATTACHMENT SET



CG-4 Trunnion Pin Attachment Set. Used with the Snap-on King Pin Puller to remove and replace trunnion pins on Detroit No. 2 universal joints. Makes easy work of "ball and trunnion" universal joint repairs. Specifications call for this pin to be set within .006" of center and this attachment centers the pin into the ball within that tolerance. Parts included are—

- CG-4-1 Pilot (one) CG-4-3 Mandrel (one)
CG-4-2 Spacer (one) CG-4-4 Bushing (two)

CG-414 Trunnion Pin Set. Consists of CG-4 Trunnion Set and the following King Pin Parts. Pressure Screw, Yoke, two Yoke Posts, two Post Nuts, General Use Head and 1¼" Bushing.

CG-417 King Pin and Trunnion Pin Set. Consists of the CG-212 King Pin Set and CG-4 Trunnion Pin Attachment Set.

PERCH HEAD FOR LATE MODEL FORD

CG-21-L-5 Ford Perch Head. This special head is required for use with the King Pin Tool on Ford car models from 1941 to 1948 inclusive. On all light Ford trucks 1941 to 1948 that have a regular passenger car chassis this head is also required. On heavier Ford trucks the regular head included in the above sets handles the job. Add this special head to your present Snap-on King Pin Set.



Snap-on FRONT WHEEL ALIGNER



5 REASONS WHY SNAP-ON FRONT WHEEL ALIGNER WILL MAKE BIG PROFITS FOR YOU

- (1) It Accurately Checks—
 - a. Wheel Camber
 - b. Wheel Caster
 - c. Steering Geometry or Toe-Out
 - d. Front Wheel Toe-in.
- (2) It Will Work on any Motor Vehicle—Cars—Trucks—Busses.
- (3) It is so Easy to use—That any Mechanic can Operate it.
- (4) It does not require permanent Floor Space or Turn Tables.
- (5) It costs less to own and use.

Hundreds of thousands of cars now on the street need some form of wheel alignment correction. If you have been letting this business go to other shops because you had limited floor space or could not afford to invest in the larger permanently installed wheel aligning equipment, now is a good chance to cash in on this type of service.

If you have space in your shop to park a car, you have space to use the Snap-on Front Wheel Aligner. This is a simplified and accurate method of checking front wheel alignment . . . a method that removes the mystery and reduces it to a few easy-to-understand, fast-checking operations.

One important feature is the matched pair of camber and caster protractors . . . there's no time wasted interchanging one protractor on both front wheels. Protractors are quickly fastened to the wheels by means of special lug clamps and are easily read as shown at right. Ball-bearings in the pendulums insure a free swinging action.

Your shop . . . every shop . . . can do an expert-like job on any car, truck, or bus with this equipment. No turntables and no permanent installation of any kind are required . . . the equipment can be used on any level floor, and any mechanic can understand and use it. With it you can accurately check Camber, Caster, Steering Geometry, and Toe-in.

WA-502A-B WHEEL ALIGNER SET

Consists of following units in box shown above.

- WA-50-A Pair of Camber and Caster Protractors.
- WA-52-A Angle Gauge.
- KR-154 Special Metal Case.

WA-503A-B COMPLETE SET

Contains all units in above set and also includes

- WA-51 7 Foot Toe-in Trammel Bar and Gauge.
- (18 foot bar available on special order)

WA-53 Special Clamps, for use on convex disc type truck wheels. Not included in above sets. (2 needed)

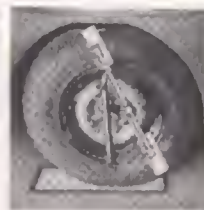


Snap-on Wheel Aligning Set consists of the following units.

1. Pair of Camber—Caster Protractors, matched for right and left hand wheels.
 2. Angle Gauge of setting front wheels at correct checking angle.
 3. Toe-In Trammel Bar complete with Traveling Gauge.
- It is important that the protractors be attached to the wheels as shown above. The hub cap is removed and the protractor attached by one of the lug nuts to the rear of wheel center. Protractor Bar is set at an angle to miss tire bulge. Protractor Plate swings to perpendicular and indicator arm rides on ball bearings to register extremely accurate readings. Complete instructions furnished.



Traveling gauge used to obtain front and rear measurement of front wheels for toe-in check.



Protractors are fastened to the wheel as shown above . . . bar is angled to miss the tire bulge at road level.



This front knurled screw centers scale plate for properly checking camber angle readings. Unlock when making caster readings.



When checking caster, scale plates are first placed in the correct position by these side knurled screws. This operation is closely shown in picture above.



Plus and minus signs are used for checking caster. Positive or negative camber is shown by whether the hair-line is between zero mark and wheel or outside zero mark.

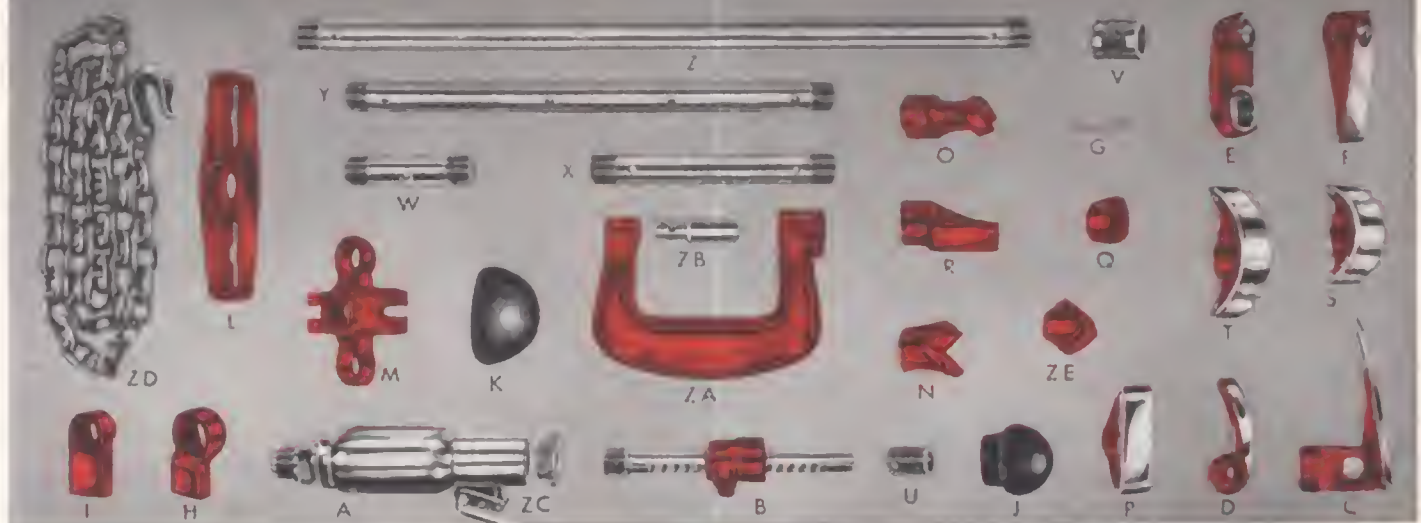


The Angle Gauge is used with the Trammel Bar to check front wheel positions with relation to each other in turns. The wheels must be at specified turning angles. Gauge has scale on both sides.



The Toe-In Trammel Bar has check bars which rest against the tire wall and eliminate the need for chalk markings. One of these check bars has the adjustable traveling gauge described above. The Bar is placed against rear of tires as shown, the gauge is adjusted to contact the side wall and the reading made. Bar is then moved to front of wheels and a reading taken—the difference in the two readings shows the amount of toe-in.

Snap-on Hydra-Pak FOR FASTER, EASIER, BODY 10 TONS OF POWER . . . CONTROLLED PRESSURES



MAKE BIGGER PROFITS ON EVERY JOB WITH HYDRA-PAK

**No Hoses . . . No Motors . . .
No Remote Power Connections**

Use the new, easy Snap-on way to apply hydraulic power with greater speed and accuracy. Using HYDRA-PAK is as simple as using a hand jack—the hydro-unit is right in front of you, on the tool itself where you can regulate power as you watch the job . . . where one man can handle the tool and job all by himself and do better, faster work because he can see what he does as he does it. HYDRA-PAK has no hose for transmission of fluid, no motors, no remote power connections.

**The Right Pressure Always . . .
Because You Always See the Work**

HYDRA-PAK gives you precision hand-control of 10 tons of power, applied through various combinations of specialized attachments to push, pull, bend, spread, press, lift and clamp . . . controlled power for every operation necessary in body rebuilding work. Cutting power is like shutting a valve . . . the "push" stops instantly, no easing off, no over riding. HYDRA-PAK also retracts automatically . . . saves time on each set-up. Write for descriptive Hydra-Pak Manual.

Choice of Three Sets

The BJ-10 Body Shop Set includes all the parts listed below. The units in the other two sets have been carefully selected to provide adequate working adaptability for the average body shop job, additional units can be purchased as needed to make these sets more versatile.

BJ-10 Body Shop Hydra-Pak Set.
BJ-10-M Basic Shop Hydra-Pak Set.
BJ-10-J Car Dealer's Hydra-Pak Set.

Individual List of Hydra-Pak Parts That Make Up Hydra-Pak Sets

Key Letter	Stock No.	Description	BJ-10 Set	BJ-10-M Set	BJ-10-J Set	Key Letter	Stock No.	Description	BJ-10 Set	BJ-10-M Set	BJ-10-J Set
A	BJ-10-1B	Hydra-Ram Power Unit	x	x	x	P	BJ-10-12	Flat Base Pad	x	x	x
B	BJ-10-2	Kwik-tension	x	..	..	Q	BJ-10-13	Serrated Plunger Saddle	x	x	x
C	BJ-10-3	Adj. Body Spoon Complete with BJ-10-3-2	..	..	..	R	BJ-10-14	Wedge End	x	x	x
		Large Dolly Blade	x	x	x	S	BJ-10-15	3" Radius Pad	x	x	..
D	BJ-10-3-3	Small Dolly Blade for BJ-10-3 Adj. Spoon	x	..	..	T	BJ-10-16	5" Radius Pad	x	x	x
E	BJ-10-4-1	Ext. Tube Clamp Head	x	x	..	U	BJ-10-17	Pad Coupler	x	x	x
F	BJ-10-4-2	Clamp End Toe	x	x	..	V	BJ-10-18	Tube Coupler	x	x	x
G	BJ-10-4-3	Clamp Toe Lock Pin	{ 2 incl }	{ 2 incl }	..	W	BJ-10-21	6" Seamless Steel Ext. Tube	x	x	x
H	BJ-10-5-1	Spreader Toe	x	x	..	X	BJ-10-22	12" Seamless Steel Ext. Tube	x	x	x
I	BJ-10-5-2	Spreader Plunger Toe	x	x	..	Y	BJ-10-23	24" Seamless Steel Ext. Tube	x	x	x
J	★ BJ-10-6	Plastic Pad (Sm.)	x	x	x	Z	BJ-10-24	36" Seamless Steel Ext. Tube	x	..	..
K	★ BJ-10-7	Plastic Pad (Lg.)	x	x	..	ZA	BJ-10-27	"C" Clamp	x	..	..
L	BJ-10-8	Chain Pull Plate (Lg.)	x	..	..	ZB	BJ-10-27-1	"C" Clamp Adaptor	x	..	..
M	BJ-10-9	Chain Pull Plate (Sm.)	{ 2 incl }	..	..	ZC	BJ-10-28	Hydra-Ram Base Plate	x	..	..
N	BJ-10-10	90° V-Base (Lg.)	x	x	x	ZD	★ BJ-10-29	Special 3/8" Alloy Chain	{ 2 incl }	..	..
O	BJ-10-11	90° V-Base (Sm.)	{ 2 incl }	..	..	ZH	BJ-10-31	Angle Base Pad (90°)	x	x	..

HYDRA-RAM ADAPTORS

Two new units which adapt the Hydra-Ram to fit Blackhawk Porto-Power accessories, or Hydra-Pak parts to the Porto-Power Jack. Both units are required in either case.

BJ-10-33 Adaptor. 1 1/4" x 1 1/4" taper pipe thread male end, 1 1/2" x 12 thread female end, 2 3/4" long.

BJ-10-34 Adaptor. 1 1/4" x 12 thread male end, 1 1/4" x 1 1/4" taper pipe thread female end, 2 1/10" long.

HYDRA-PAK GUARANTEE

All Hydra-Pak parts and attachments (except the plastic pads and chains) carry a guarantee against defects in workmanship and materials. In the case of the Hydra-Ram Power Unit this guarantee is limited to a period of 90 days from date of purchase.



AND FRAME STRAIGHTENING TO THE FRACTION OF AN INCH



**THE HYDRA-RAM IS A
SELF CONTAINED HYDRAULIC
POWER UNIT—NO FLUID HOSES OR
REMOTE POWER CONNECTIONS**

SNAP-ON HYDRA-RAM

BJ-10-1B Hydra-Ram. This self-contained hydraulic power unit develops ten tons of pressure and operates at full efficiency regardless of the position in which it is used. That means you can use it on any job in whatever is the most useful working hook-up and placement and know that it will deliver its full power under complete control at all times. The pump handle attaches in 12 positions for convenient use.

The plunger does not turn but moves straight out for a full 6" travel to apply pressure without twisting the contact pad out of position. It stops and holds securely at any point on the travel range but can be retracted instantly by turning the release valve. Retraction takes place automatically and requires no assistance—closing the release valve readies the Ram for the next job.

The Hydra-Ram is 12" long, 3½" outside diameter, has a 6" stroke, weighs 14 lb.

A ADJUSTABLE SPOON

BJ-10-3 Adjustable Spoon. This improved adjustable spoon attachment has two interchangeable blades of different size and design. The spoon blades are quickly attached to the holder in any one of twelve working positions. Adjustments in position can be made without removing the set-up from the job. This is a great time saver as the blade position can be gradually adjusted as the job progresses. Slips into very restricted working spots to push out panels, etc.

B KWIXTENSION

BJ-10-2 Kwixtension. This exclusive HYDRA-PAK feature is a special attachment which provides a lightning-fast extension of tubes when making a set-up on the job. The Kwixtension provides an additional eight inches of tube length with fourteen stop positions before a change-over of extension tubes is necessary. You simply slide it out to the best stop position and then operate the Hydra-Ram Power Unit.

C EXTENSION TUBES

Made of Timken-Shelby Seamless Steel Tubing. Snap-on extension tubes are laboratory tested to withstand much greater pressures than you will ever apply with the Hydra-Ram. They are quickly and easily attached to the Hydra-Ram by means of free-turning threaded ends that are protected against burring by a special safety step at the end of the thread.

ALLOY STEEL ATTACHMENTS

Malleable and special alloy steels are used in all HYDRA-PAK attachments and pads, and the castings are carefully machined and surface-finished to assure safe, dependable operation and long service life... every necessary type of attachment is included, and hundreds of different combinations and set-ups to fit every kind of job can be made in a minimum of time. These attachments are threaded to fit the Hydra-Ram, and outer ends of threads are protected by a recessed safety step.

TWO NEW Snap-on UNITS FOR FASTER BODY SHOP WORK

HYDRA-PAK ROLL-CAB AND HYDRA-PAK ARBOR-PRESS

This New Roll-Cab Holds All Your Hydra-Pak Parts — Turns Walking Time Into Working Time

HYDRA-PAK ROLL-CAB

KR-390 Hydra-Pak Roll-Cab. Holds all your Hydra-Pak parts plus hammers, dollies and other hand tools. Cab is open on both sides for quick access to tools. Overall size is 42" long, 20" wide, 33½" high. Bottom shelf measures 32" x 20" with 12½" clearance to top shelf. Top shelf has a low strip dividing it into two 32" x 10" sections, with 13½" top clearance... end openings allow storage of 36" extension tubes by sliding them into the end compartment.

The end section is built to accept the Snap-on Arbor Press and the metal top is formed with an opening at that end. The entire top has a masonite covering in which a corresponding opening can easily be made and which provides a full work top if the arbor press is not wanted. Cab has red enamel finish and rolls on 3" diameter rubber casters—two fixed and two swivel toe-lock type.

Drawer space for handy storage of small parts or tools can quickly be added by attaching one or two KR-410 Drawers described on page 7... four machine screws attach the drawers to the underside of Roll-Cab top. Net weight of Roll-Cab—111 lbs.

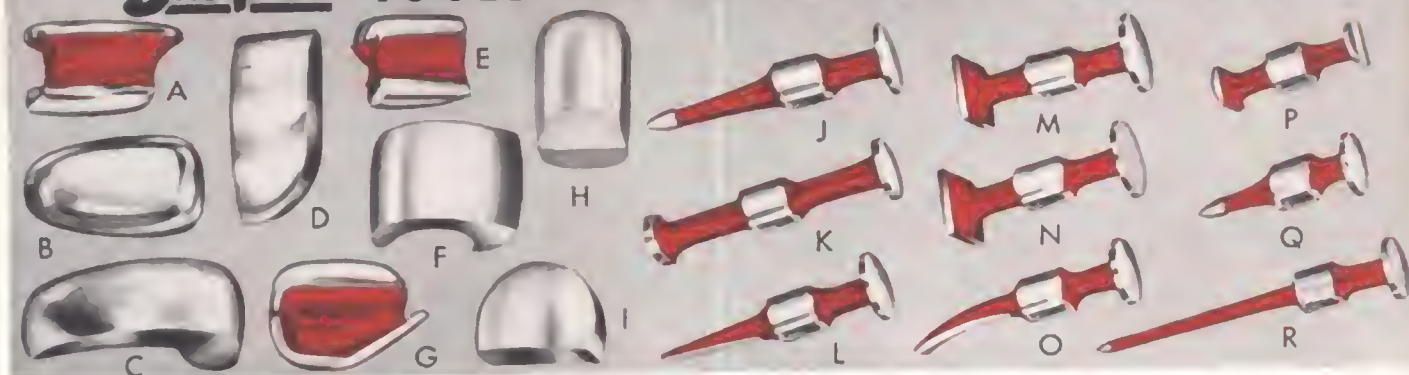
HYDRA-PAK ARBOR PRESS

BJ-10-35 Arbor Press. Designed for use on the Hydra-Pak Roll-Cab. The Snap-on Hydra-Ram is quickly locked into the sliding top plate to provide up to 10 tons of controlled press power. Here is an efficient unit for straightening bumpers and braces, tie rods, etc.; for installing bearings; pressing gears off shafts; as a general purpose shop press for heavy duty pressing operations. Top plate and bottom pressure plates slide to any position for convenient operation.



Snap-on

TOOLS FOR FASTER BODY BUMPING



A BF-714 Anvil Dolly. The most essential and useful dolly made. The streamlined wide curved faces fit contours of all portions of the body and door panels. Provides ideal surface for most fenders. Small oval is perfect for outside curves when hammer is used on the inside of the work. 4" long, 2 3/4" wide, 2 1/4" high. Anvil faces 1 1/4" by 4"; 2 3/4" by 3". Wt. 2 1/2 lbs.

B BF-709 Bar Dolly. A good general block for all around use because of its many curves. Has large flat and rounded surfaces. 4 1/2" long, 2 3/4" wide, 1 1/2" high. Wt. 3 1/4 lbs.

C BF-713 Wedge Dolly. Ideal for use on late model streamlined ears. Tapered wedge is useful for many jobs where other blocks cannot be used. Top surface is arched and the block gives you a wide choice of curves. 5 1/2" long, 2 1/2" wide, 1 1/4" high. Wt. 3 1/4 lbs.

D BF-710 Toe Dolly. With its many curves and edges, this tool fits a great many of the odd curves found on modern streamlined cars. 4 3/4" long, 2 1/4" wide, 1 1/2" high. Wt. 2 1/2 lbs. A time saver on many jobs.

E BF-712 General Purpose Dolly. Especially designed for deep skirted fenders. Semi-flat surface is useful for shrinking work where heat is used. 3" long, 2 3/4" wide, 2 1/4" high. Weight 2 1/2 lbs.

F BF-705 Fender Dolly. For fenders with rolled edges and beads. The small curved end works perfectly under the rolled edge. 3 3/4" long, 2 1/4" wide, 1 1/4" high. Wt. 2 lbs.

G BF-706 Anvil Block. Curved to fit the contours of all late model cars. Special shape provides a good hand hold. Protects the hand when heat is applied. 4" long, 2 1/4" wide, 3" high. Wt. 3 1/4 lbs.

H BF-716 Tear-drop Dolly. Almost completely rounded to fit new contours. Two flat faces on end give sharp edge for slight creases in panels and fenders. 3 1/4" x 2 3/4" x 1 1/4". Wt. 2 lbs.

I BF-711 Heel Dolly. A good basic tool for it handles a majority of jobs on new or old cars. 3" long, 2 3/4" wide, 1 1/4" high. Weight 2 1/2 lbs. Should be in every body repair kit.

J BF-603 Long Low Spot Pick Hammer. Especially adapted for bumping out small, low spots while filing. Saves solder. Recommended for use wherever metal is covered with sound-proofing materials, such as tops, bodies and doors. 6 1/4" long, 1 1/2" round face. Pick tapers to a 1/4" point from a 3/16" base. Wt. 12 1/2 ozs.

K BF-613 Large Dinging Hammer. Our largest dinging hammer. Has 6" double-faced head. One face is 1 1/4" diam., other is 1 1/2" dia. Wt. 9 ozs. Both heads are flat and polished.

L BF-604 Wide Nose Cross Peen Hammer. Excellent for finishing. Cross peen is useful for working in sharp corners around mouldings and for caulking. 5 1/2" long, 1 1/2" round face. Peen end 1/2" wide, 1/4" thick. Wt. 11 1/2 ozs.

M BF-606 Wide Face Shrinking Hammer. Wide faces are essential for shrinking operations on heated metal panels. Both faces absolutely flat to prevent stretching metal. Also used for panel bumping. 4 1/2" long, 1 1/2" round face and 1 1/2" square face. Wt. 17 ozs.

N BF-610 Cross-Milled Shrinkage Hammer. Has extra wide faces with serrated surfaces for shrinking and working large surfaces which are badly stretched. Cross-milled heads knead the metal and work it back into shape without heat. 4 1/4" long, 1 1/2" round face and 1 1/4" square face. Wt. 17 ozs.

O BF-608 Short Curved Cross Peen Hammer. Curved peen is for use under rolled edge fenders. Has perfect finishing face for use as regular dinging hammer. 5 1/4" long, 1 1/2" round face, 3/8" by 1/16" peen end. Wt. 11 1/2 ozs.

P BF-615 Light Bumping Hammer. One 1 1/4" square face and one 1 1/4" round face. Each face has a 1/16" radius curve for work on reverse curves on fender panels around headlights and on some doors. Length of head 4". Wt. 10 ozs.

BF-612 Bumping Hammer. (Not shown) Same as BF-615 above but with flat surface faces.

Q BF-611 Picking and Dinging Hammer. For smoothing out small dents and for general dinging work. 4" long, 1 1/2" round face, 1/4" point tapered from 1/16" base. Wt. 8 ozs.

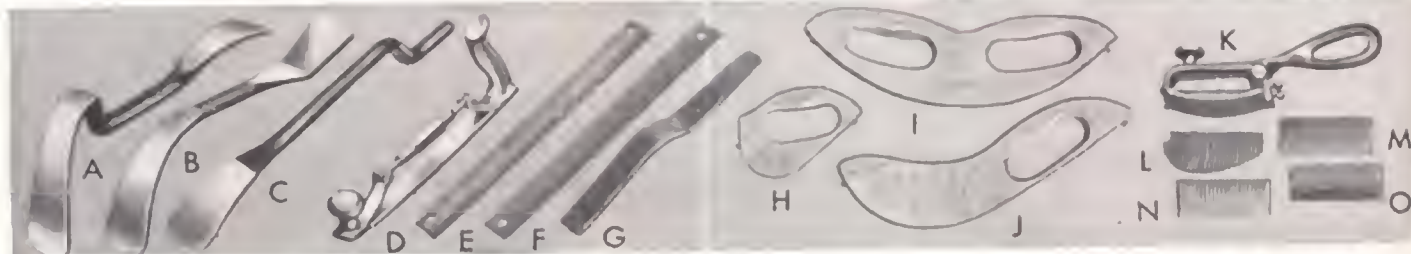
R BF-614 Long Picking Hammer. 6" long picking shaft with rounded point... good for turret and deep fender work. The round flat face is 1 1/2" diameter. Overall head length is 8 1/2". Wt. 1 lb. Handle is 17" long.

BF-614A Long Curved Picking Hammer. (Not shown) Same as BF-614 above but with curved pick and 12" handle.

FIRST GRADE HICKORY HANDLES

Standard 12" length handles used in these hammers have Octagon grip to keep tool from slipping. Handles are first grade white hickory and are available in 12", 17" and 24" lengths—complete with wood wedge.

★BF-603-2 12" Handle.	For BF-603, BF-604, BF-606, BF-608, BF-610, BF-613, BF-614 and BF-614A.
★BF-614-2 17" Handle.	
★BF-603-24 24" Handle.	
★BF-611-2 12" Handle.	For BF-611, BF-612 and BF-615.
★BF-611-24 24" Handle.	



SNAP-ON BODY SPOONS

A BF-751 Door and Body Pry Spoon. For general purpose use on doors, cowls, aprons and for working back of inner surfaces. Blades are 2 3/4" wide at widest point and have a slight crown. 22" long, weight 4 1/2 lbs.

B BF-752 General Purpose Spoon. Blades are 2 1/2" wide at widest point. A good tool for driving behind braces, for cowl, drip moldings, deck panels, heading work, etc. 16 1/2" long, weight 3 lbs. 2-oz.

C BF-753 Inside Door Spoon. For driving out door panels, especially around the edges without removing cross braces or studs. Good for inside trunk work. Can be driven with a heavy hammer. Widest point of blade is 2 1/4". 21" long, weight 4 lbs.

HALF-ROUND VIXEN FILE

D ★14-VHR Vixen Shell Type Half-Round File. Use this file where a milled-tooth half-round file is required. Can be used on bearing work or on body work. Teeth are standard cut 8 teeth per inch and are cut on convex side only. File length is 14". Fits BF-775-A Flexible File Holder.

FLEX FILE HOLDER

E ★BF-775-A Flexible File Holder—as comfortable to hold as a plane. Light and rigid for accurate gauging. Ruggedly flexible over a wide range of concave and convex filing operations. Adjustable to all positions. Large handles of aluminum alloy provide ample grip for extra large hands—high clearance turnbuckle protects knuckles. Heat treated turnbuckle screws insure positive adjustment. Hinges are chatterproof. Permanently attached strap takes 14" files.

F ★14-V Flexible curved tooth file, 8 teeth to inch.

G ★14-V-7 Flexible curved tooth file, 7 teeth to inch.

BUMPING FILES

H ★HB-303 Bumping File Set. These files are 12" long and 1 1/4" wide, and are used like hammers with dolly blocks to slap out dents in bodywork. They do not expand the metal but rather tend to contract to original shape. Set contains three files below:

I ★HB-2088 Flat, Coarse Cut File.
J ★HB-2089 Flat, Medium Cut File.
K ★HB-2090 Half-Round Medium Cut File.

CURVED WOOD FILE HOLDERS

L HB-473-W Special Window Reveal File Holder. Two screws included. Only 1/2" wide.

M ★HB-473-F File, to fit above handle. Flat shape. Teeth on one side only.

N HB-470-W Vixen Half Circle File Holder. For fender and contour work where a forward stroke is needed.

O ★HB-470-F File to fit above. Teeth on convex side of the file.

P HB-471-W Special Vixen Curved File Holder. 14" long. Useful on fenders.

Q ★HB-471-F File, to fit above handle. Standard cut teeth on one side only.

VIXEN REVEAL FILES

R ★HB-606 Vixen Reveal File Set. One of the most useful sets for body and fender work. Smooths out ledges and corners. Includes—

S ★HB-153-F Half-Round, Shell File.
T ★HB-154-F Flat, Square-Cornered File.
U ★HB-155-F Flat, Rounded Edge File.
V ★HB-156-F Half-Round, Bent Shell File.
W ★HB-157-F Half-Round, Moulding File.
HB-152 Vixen Reveal File Holder, for above.

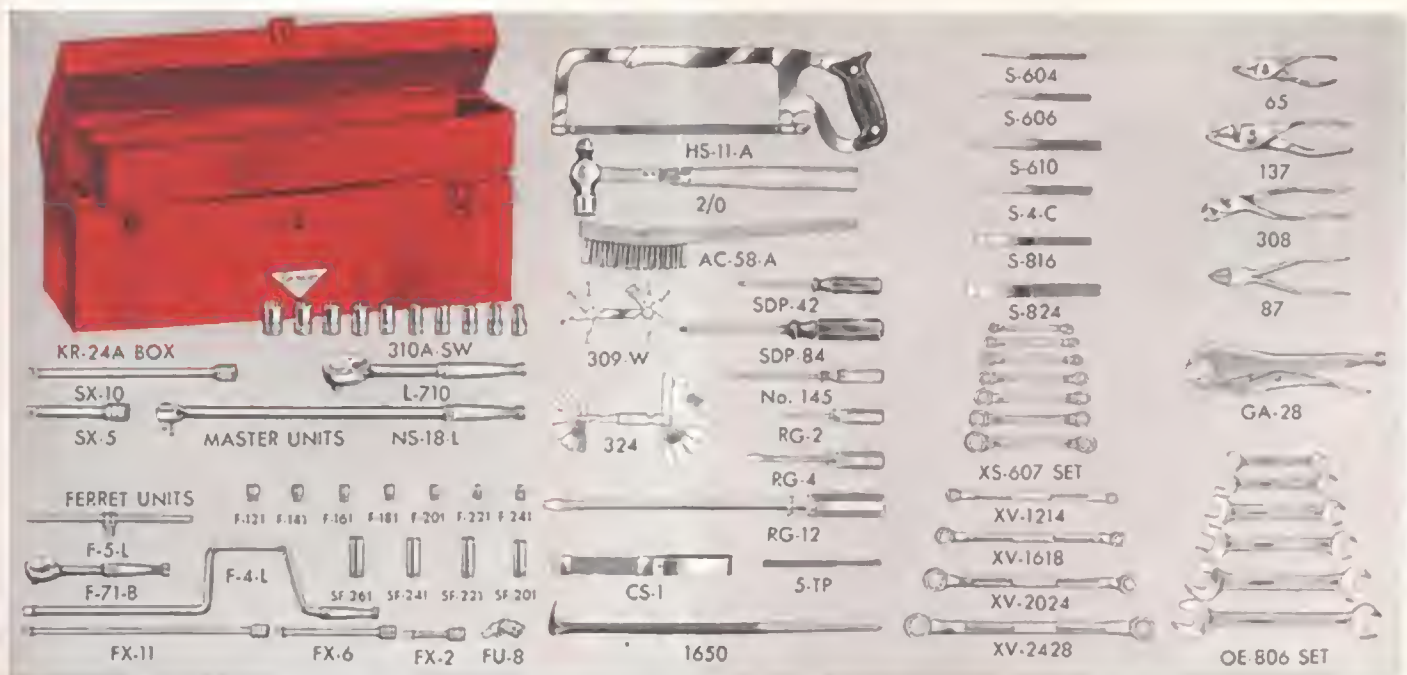
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5074-GS-B SNAP-ON MECHANIC'S BASIC TOOL SET — Containing 74 Tools

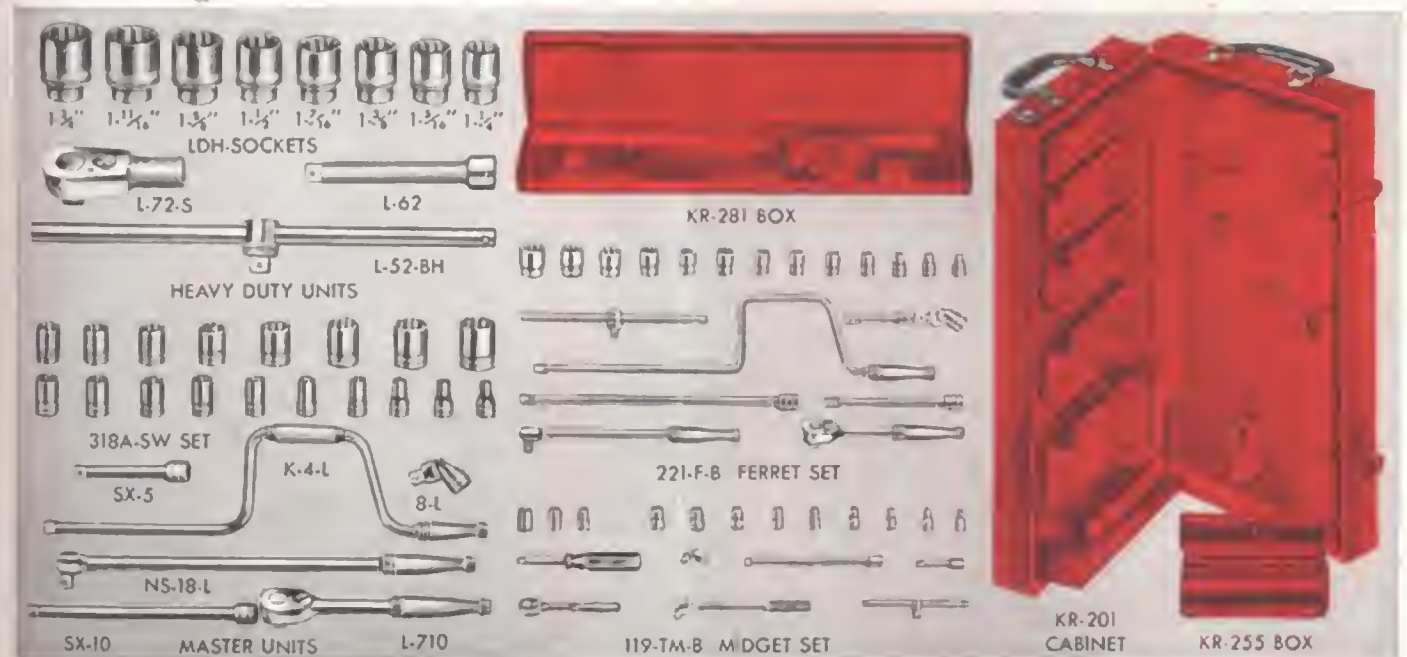
5074-GS-B Mechanic's Basic Tool Set. In this set we have assembled a well balanced selection of tools especially suitable for the man starting to build up his kit. It provides a basic set to which other units can be added as the need arises. Every tool will find practical use in everyday service operations. Set contains 74 tools as follows, together with KR-24A MechanicKit (page 9).

Ferret Tools ($\frac{1}{2}$ " Square Drive) Seven Double Hexagon Sockets— $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", and $\frac{5}{8}$ "—also Four Deep Double Hexagon Sockets— $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", and $\frac{3}{8}$ ". Three Extension Bars—3", 6" & 12" long. One Universal Joint, one Speeder, one Sliding Tee Handle and one Ratchet Wrench. (Pages 27-29).

Master Tools ($\frac{1}{2}$ " Square Drive) One Ratchet—One 18" Nut Spinner, Two Extension Bars 5" & 10" long, Ten Double Hexagon Sockets, $\frac{1}{16}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", and $\frac{1}{2}$ ". (Pages 22-24).

Miscellaneous Tools. Four Double Offset Boxsocket Wrenches— $\frac{1}{4}$ " & $\frac{3}{16}$ ", $\frac{1}{2}$ " & $\frac{5}{16}$ ", $\frac{3}{4}$ " & $\frac{1}{2}$ ", $\frac{1}{2}$ " & $\frac{3}{4}$ "; Seven Dwarf Boxsocket Wrenches— $\frac{1}{16}$ " & $\frac{3}{16}$ ", $\frac{1}{8}$ " & $\frac{1}{4}$ ", $\frac{1}{4}$ " & $\frac{1}{2}$ ", $\frac{3}{8}$ " & $\frac{1}{2}$ ", $\frac{1}{2}$ " & $\frac{3}{4}$ ", $\frac{3}{4}$ " & $\frac{1}{2}$ ", $\frac{1}{2}$ " & $\frac{3}{4}$ "; Six Open End Wrenches— $\frac{3}{16}$ " & $\frac{1}{4}$ ", $\frac{1}{4}$ " & $\frac{1}{2}$ ", $\frac{1}{2}$ " & $\frac{3}{4}$ ", $\frac{3}{4}$ " & $\frac{1}{2}$ ", $\frac{1}{2}$ " & $\frac{3}{4}$ ", $\frac{3}{4}$ " & $\frac{1}{2}$ "; One 10" Vise Grip Wrench, one 12 oz. Ball Peen Hammer, One Combination Tappet and Ignition Feeler Gauge, One Wire Spark Plug Feeler Gauge, Three Standard Screw Drivers with $2\frac{1}{2}$ ", 4" and 12" blades, One 6" blade Spark Testing Screw Driver, Two Phillips Type Screw Drivers Nos. 2 and 4 bits, Two Flat Chisels $\frac{1}{2}$ " and $\frac{3}{4}$ " edge, Three Pin Punches $\frac{1}{16}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ ", One 6" Center Punch, One 16" Pry Bar and Lining-up Punch; Four pliers 7" Heavy Duty General Purpose, 5" Thin Nose Gripper, 7" Diagonal Cutter and 7" Battery Pliers, One Carbon Scraper, One Hack Saw Frame, Wood Handle Wire Brush and Ignition Point File.

5074-GS Mechanics Basic Set. Same set as above but tools only.



5075A-GS-B SNAP-ON MASTERMECH SOCKET WRENCH SET — Containing 75 Tools

5075A-GS-B MasterMech Set. Here is a set of Snap-on wrenches and specially designed carrying case that solves a majority of nut and bolt turning problems in all fields of industrial maintenance and product service. 51 sockets range from $\frac{3}{16}$ " up to $1\frac{1}{2}$ " sizes, complemented with a wide selection of the most useful wrench handles, as listed below. Set includes KR-201 Special Metal Cabinet designed expressly for this set, Red enamel finish.

Midget Tools ($\frac{1}{4}$ " Drive). 119-TM-B Midget Set Illustrated and described in detail on page 30. Contains Ratchet, Two Extension bars, 2" and 5" long, Sliding Bar, Nut Spinner, Universal Joint, Plastic Grip Handle, Nine Single Hex Sockets $\frac{1}{16}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ "; Three Double Broached Square Sockets $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ ", in metal box.

Ferret Tools ($\frac{1}{2}$ " Drive). Standard Ferret Set 221-F-B Shown on Page 27 contains Ratchet, Speeder, Sliding Bar, Nut Spinner, 3 Extension Bars—2", 6" & 11" long; Universal Joint, Two Single Hex Sockets— $\frac{1}{4}$ ", $\frac{3}{8}$ "; Eleven Double Hex Sockets— $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ". In metal case. Case fits into holders on back of large cabinet.

Master Tools ($\frac{1}{2}$ " Drive). Nut Spinner, Speeder, Ratchet, Two Extension Bars 5" and 10" long; Universal Joint and Eighteen Double Hex Sockets, $\frac{1}{16}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ". See pages 22 to 25.

Heavy Duty Tools ($\frac{1}{2}$ " Drive). Ratchet, Sliding Tee, 8" Ext. Bar, Eight Hex Sockets, $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{1}{2}$ ". (Pages 18-19).

THE NEW **Snap-on** "MASTER SUPREME SET"

NEW HANDLE AND SOCKET DESIGN — NEW HIGH STANDARDS OF TOOL VALUE



The Finest Tools That Your Money Can Buy!

23 Most Needed Wrenches for General Service Work

323-M-B Snap-on Master Supreme Set. (Complete with the KR-280B Metal Case.) Equip yourself now with this line set of Snap-on wrenches and enjoy the working convenience and efficiency that good tools can give you. The socket range of $\frac{7}{16}$ " to $1\frac{1}{4}$ " will turn practically any hex nut you'll encounter in general servicing operations, and the selection of handles and attachments gives you turning speed, leverage and reach to take care of any situation. Rid your tool kit of worn out knuckle busters and make this set the foundation for a modern and efficient tool outfit—one which will help you work faster and easier and earn you bigger pay checks. Mechanics who have equipped themselves completely with Snap-on tools have told us that they have increased their earnings over twenty-five percent—good tools can help you do the same.

Complete descriptions of the tools included in this set will be found on pages 22 to 25 and you'll find listed there many other half inch square drive units which you may wish to add to your set. Other sets of "Master" wrenches are shown on page 21. The KR-280B metal case is constructed especially for "Master" sets and has separate compartments to line up your sockets. Metal carrying handle is welded to the cover which is secured by metal hinges and snap clip. Case measures $20\frac{1}{2}$ " x $6\frac{1}{2}$ " x $2\frac{1}{4}$ " high and has baked-on red enamel finish.

323-M Set. Above set without the metal case but packaged in a sturdy die-cut nest-type corrugated cardboard box.

